

g500-S + m650-U shaft-mounted helical geared motors



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1 About this document

WARNING!

Read this documentation carefully before starting any work.

► Please observe the safety instructions!



1.1 Document description

This document addresses to all persons who want to carry out any configurations with the products described.

The data and information compiled in this document serve to support you in the dimensioning and selection processes and in carrying out the electrical and mechanical installation. You will receive information regarding product extensions and accessories.

- The document includes safety instructions which must be observed.
- All persons working on and with the drives must have the documentation at hand during work and observe the information and notes relevant for it.
- The documentation must always be complete and in a perfectly readable state.



1.2 Further documents



Information and tools with regard to the Lenze products can be found on the Internet:

www.Lenze.com → Downloads



1.3 Notations and conventions

Conventions are used in this document to distinguish between different types of information.

Numeric notation		
Decimal separator	Point	Generally shown as a decimal point. Example: 1 234.56
Warnings		
UL Warnings	UL	Are used in English and French.
UR warnings	UR	
Text		
Engineering Tools	" "	Software Example: "EASY Starter", "PLC Designer"
Icons		
Page reference		Reference to another page with additional information. Example:  16 = see page 16
Documentation reference		Reference to other documentation with additional information. Example:  EDKxxx = see documentation EDKxxx

Layout of the safety instructions

DANGER!

Indicates an extremely hazardous situation. Failure to comply with this instruction will result in severe irreparable injury and even death.

WARNING!

Indicates an extremely hazardous situation. Failure to comply with this instruction may result in severe irreparable injury and even death.

CAUTION!

Indicates a hazardous situation. Failure to comply with this instruction may result in slight to medium injury.

NOTICE

Indicates a material hazard. Failure to comply with this instruction may result in material damage.



2 Product information

2.1 Product description

In combination with three-phase motors, our shaft-mounted helical gearboxes represent a compact, powerful drive unit. Numerous drive and output options allow the drive to be precisely adapted to your application.

The slim shaft-mounted helical gearboxes are characterized by high permissible radial forces, closely stepped ratios and low backlash. They are available in a 2-stage, 3-stage and 4-stage design with a torque of up to 4500 Nm and a ratio of up to $i = 5849$.

Versions

- Slim design saves installation space of the machine
- Shaft dimensions in line with market standard and standardized flanges for easy machine integration
- High accuracy with axial output provide for the highest efficiency
- Highly efficient synchronous motors in the compact and robust design of a three-phase motor
- Optimized for sensorless control and designed for 250% (IE5) and 300% (IE6) overload capacity from 0 rpm

Three-phase motors for inverter operation

In a power range from 0.25 to 22 kW, Lenze offers inverter-compatible three-phase motors for more extensive tasks.

These motors differ in terms of efficiency class and can be used for the versions required for controlled or regulated inverter operation.

- Efficiency class IE5 in the power range 0.37 ... 22 kW
- Efficiency class IE6 in the power range 0.25 ... 7.5 kW

Customer benefit

- Different efficiency classes for the greatest economic benefit
- Space saving thanks to compact direct mounting on Lenze gearboxes
- Market-oriented modular system enables universal use for extensive machine tasks
- Standard market connectors ensure fast connection, even when servicing is required
- Simple design and commissioning, as easy as with an asynchronous machine
- More compact than an IE3 three-phase motor



g500-S400 gearbox with m650-U80/M4 three-phase AC motor



Flexible in motor mounting

For motor mounting, Lenze offers a scalable modular system of gearboxes with adapters.

Power is transmitted between the motor and the gearbox via a flexible jaw coupling or plug-in hollow shaft. The shaft mountings for motor shafts are available with a featherkey.

Customer benefit

- Market-oriented modular system enables universal use for extensive machine tasks
- Simple plug-in motor mounting
- Motor mounting according to IEC 72/DIN 42948
- Torsional vibration-damping power transmission of the coupling
- Motor shaft connection with low or no backlash, depending on the version

More information can be found under:

► [Gearbox data](#) 53

► [Gearboxes with adapter](#) 64



g500-S shaft-mounted helical gearbox with adapter for IEC standard motors



2.2 Identification of the products

Gearbox product name

Gearbox type	Product series		Type	Rated torque Nm	Product
Shaft-mounted helical gearbox	g500	-	S	130	g500-S130
				220	g500-S220
				400	g500-S400
				660	g500-S660
				950	g500-S950
				2100	g500-S2100
				3100	g500-S3100
				4500	g500-S4500

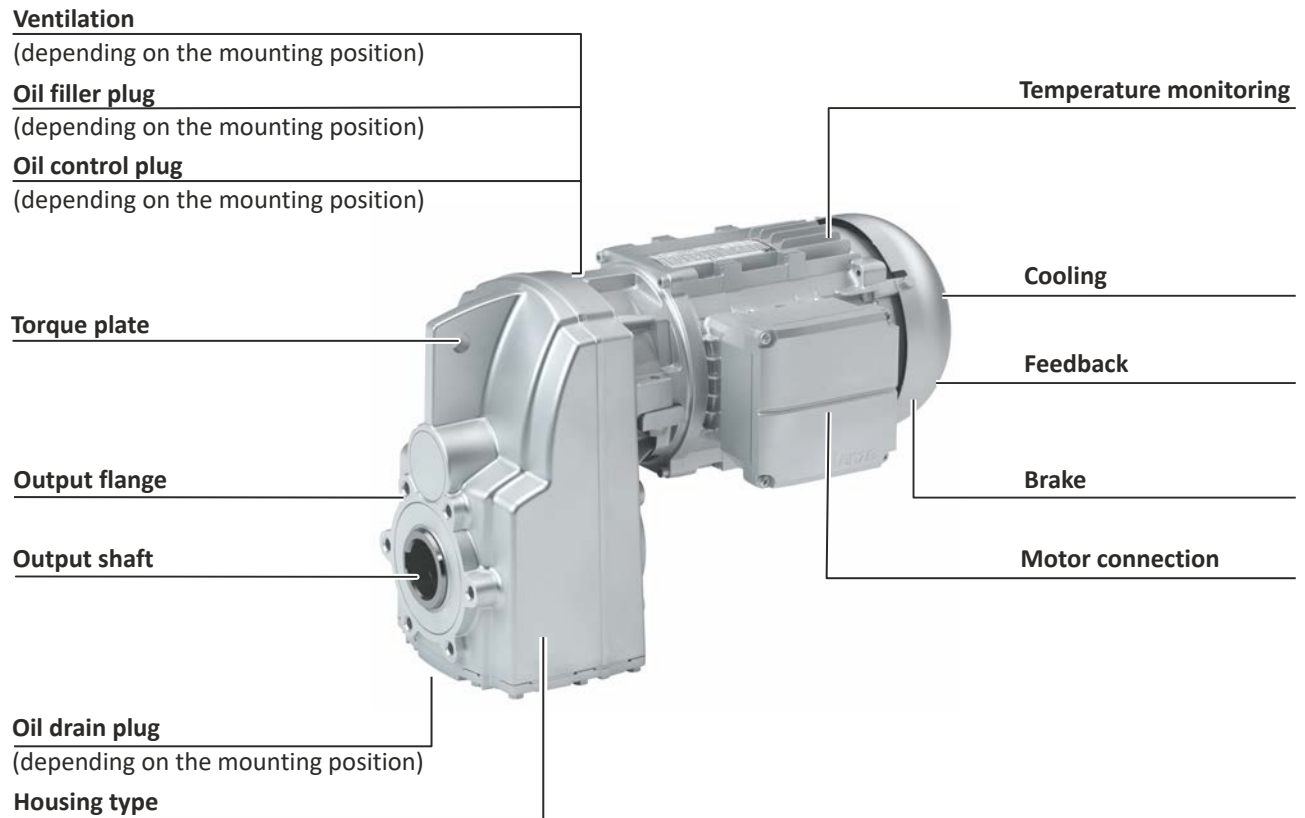
Three-phase AC motor product name

Example		m550	-	V	80	/	S	4
Meaning	Variant	Product name						
Product family		m550						
		m650						
Efficiency class	IE5			U				
	IE6			V				
Size					63 71 80 90 100 112 132			
Motor length	Short						S	
	Medium						M	
	Long						L	
Number of pole pairs	4-pole							4



2.3 Features

The following figure provides an overview of the elements and connections on the product. Their position, size and appearance may vary.





2.4 The modular system



Values printed in bold are standard designs. Values that are not printed in bold are potential extensions, some of them including a surcharge.

Geared motors up to 660 Nm

Gearbox		g500-S130	g500-S220	g500-S400	g500-S660
Min. motor assignment		m650-U63	m650-U63	m650-U63	m650-U63
Max. motor assignment		m650-U71	m650-U100	m650-U112	m650-U132
Technical data					
Max. output torque	Nm	130	220	400	660
Min. drive power at 124 Hz	kW	0.75	0.75	0.75	0.75
Max. drive power at 124 Hz	kW	1.5	7.5	11	22
Mounting position					
Standard		M1, M2, M3, M4, M5, M6 (ABCDEF)			
Combined		M1/5/6 (AEF)			
Temperature package					
Standard		Ambient temperature: 0 °C ... +40 °C			
Color		Unpainted Primed/RAL colors			
Surface and corrosion protection		Without OKS Different types of OKS			
Output shaft					
Solid shaft with featherkey (V)	mm	25 x 50	25 x 50	30 x 60	35 x 70 40 x 80
Hollow shaft with keyway (H)	mm	25	25/30	30/35	40/45
Hollow shaft with shrink disk (S)	mm	25	25/30	35	40
Shaft material		Steel Stainless steel			
Output shaft bearing		Normal			
Gearbox design		With foot (HBR/VBR) Without foot and centering (HCR)/(VCR/SCR) With centering (HCR/VCR/SCR) With output flange (HCK/VCK/SCK)			
Output flange (K)	mm	160	160	200	200/250
Ventilation		Without		Vent valve	
Cooling		Integral fan			
Product extensions					
Torque plate		Rubber buffers			
Shaft cover		Shrink disc cover			
Connection method		Y			
Connection type		Terminal box M23 connector Han-Modular connector			
Spring-applied brake		Without Holding brake			
Feedback		Without Resolver Incremental encoder Incremental encoder with safety functions Absolute value encoder			
Temperature monitoring		TCO thermal contact			



Geared motors from 950 Nm to 4500 Nm

Gearbox		g500-S950	g500-S2100	g500-S3100	g500-S4500
Min. motor assignment		m650-U63	m650-U63	m650-U63	m650-U63
Max. motor assignment		m650-U132	m650-U132	m650-U132	m650-U132
Technical data					
Max. output torque	Nm	950	2100	3100	4500
Min. drive power at 124 Hz	kW	0.75	0.75	0.75	0.75
Max. drive power at 124 Hz	kW	22	22	22	22
Mounting position					
Standard		M1, M2, M3, M4, M5, M6 (ABCDEF)			
Combined					
Temperature package					
Standard		Ambient temperature: 0 °C ... +40 °C			
Color		Primed Painted in RAL colors			
Surface and corrosion protection					
		OKS-S Different types of OKS			
Output shaft					
Solid shaft with featherkey (V)	mm	40 x 80	50 x 100	60 x 120	70 x 140 80 x 160
Hollow shaft with keyway (H)	mm	40	50/55	60/70	70/80
Hollow shaft with shrink disk (S)	mm	40	50	65	75/80
Shaft material		Steel Stainless steel			
Output shaft bearing		Normal			
Gearbox design					
		With foot (HBR)/(VBR/SBR) With foot and centering (HAR/VAR(SAR) With foot and output flange (HAK/VAK/SAK)			
Output flange (K)	mm	250	250/300	350	400/450
Ventilation					
		Vent valve			
			Oil compensation reservoir		
Cooling					
		Integral fan			
Product extensions					
Torque plate		Rubber buffers			
Shaft cover		Shrink disc cover			
Connection method		Y			
Connection type		Terminal box M23 connector Han-Modular connector			
Spring-applied brake		Without Holding brake			
Feedback		Without Resolver Incremental encoder Incremental encoder with safety functions Absolute value encoder			
Temperature monitoring		TCO thermal contact			



2.4.1 Designs

Gearbox designs

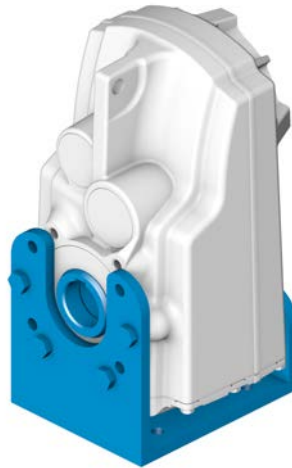


Observe the available gearbox designs!

► [The modular system](#) 14

g500-S130 ... S660

Hollow shaft, with foot



Without centring (HBR)

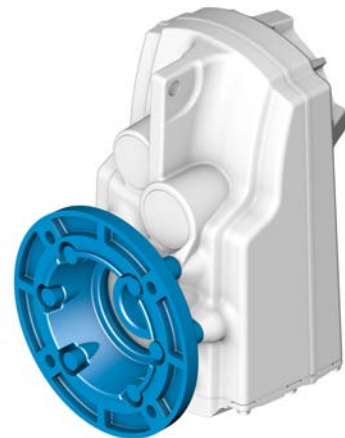
Hollow shaft, without foot



Without centring (HDR)



With centering (HCR)



Flange with through holes (HCK)



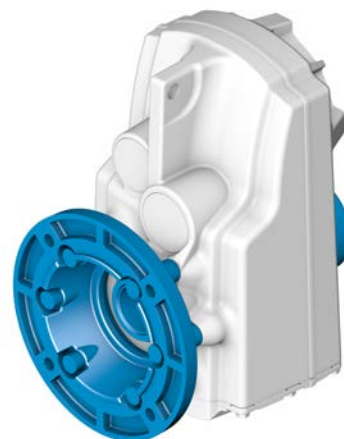
Shrink disc, without foot



Without centring (SDR)

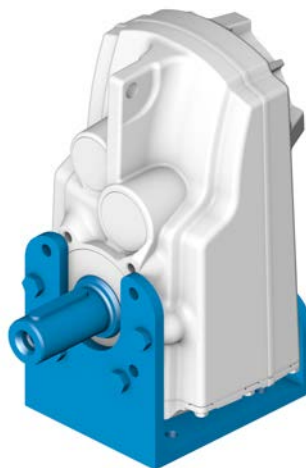


With centring (SCR)



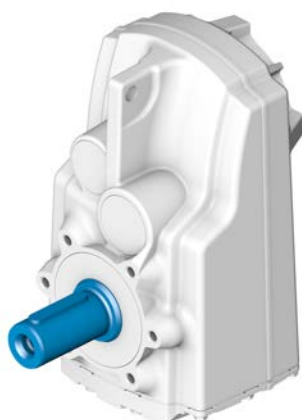
Flange with through holes (SCK)

Solid shaft, with foot



Without centring (VBR)

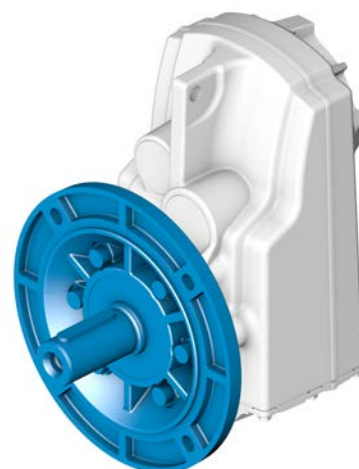
Solid shaft, without foot



Without centring (VDR)



With centering (VCR)



Flange with through holes (VCK)

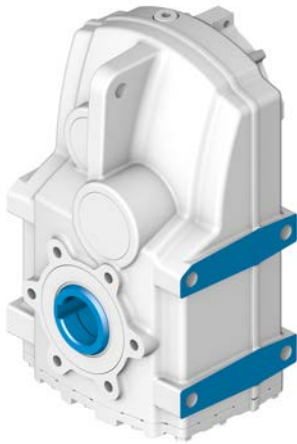
Product information

The modular system
Designs

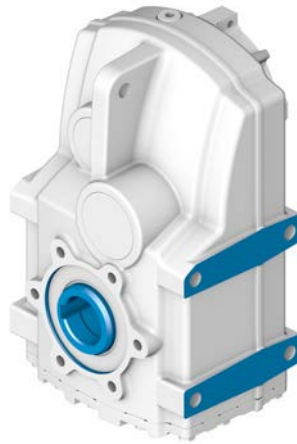


g500-S950 ... S4500

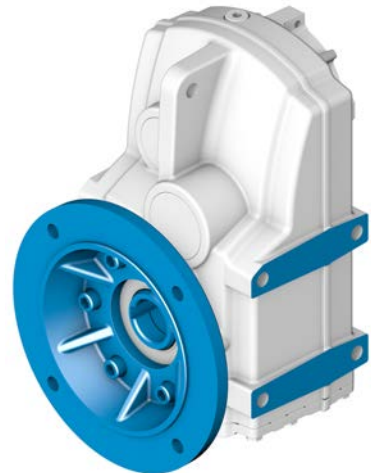
Hollow shaft, with foot



Without centring (HBR)

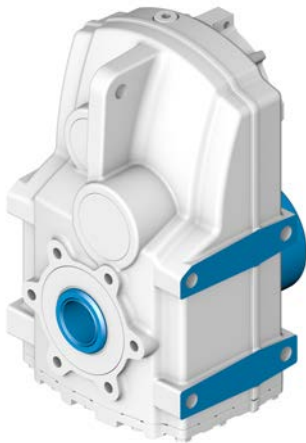


With centring (HAR)



Flange with through holes (HAK)

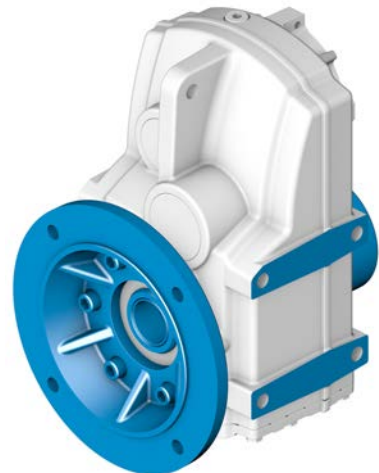
Shrink disc, with foot



Without centring (SBR)

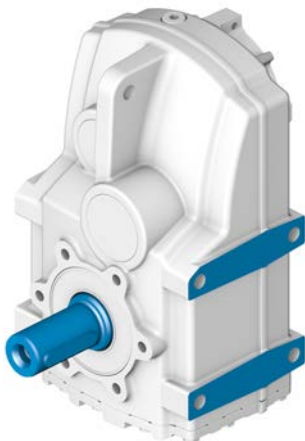


With centring (SAR)

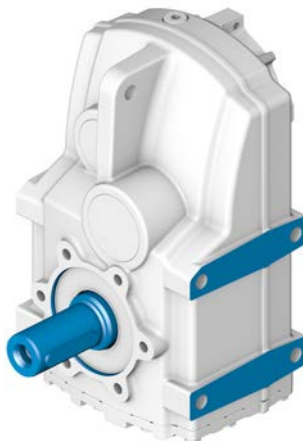


Flange with through holes (SAK)

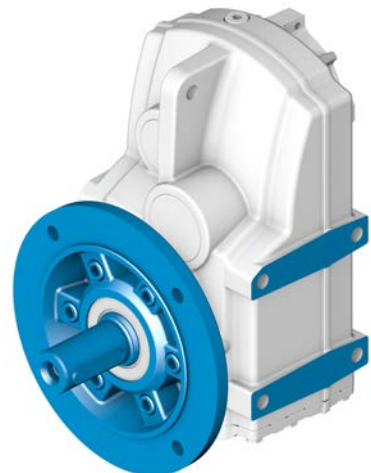
Solid shaft, with foot



Without centring (VBR)



With centring (VAR)



Flange with through holes (VAK)

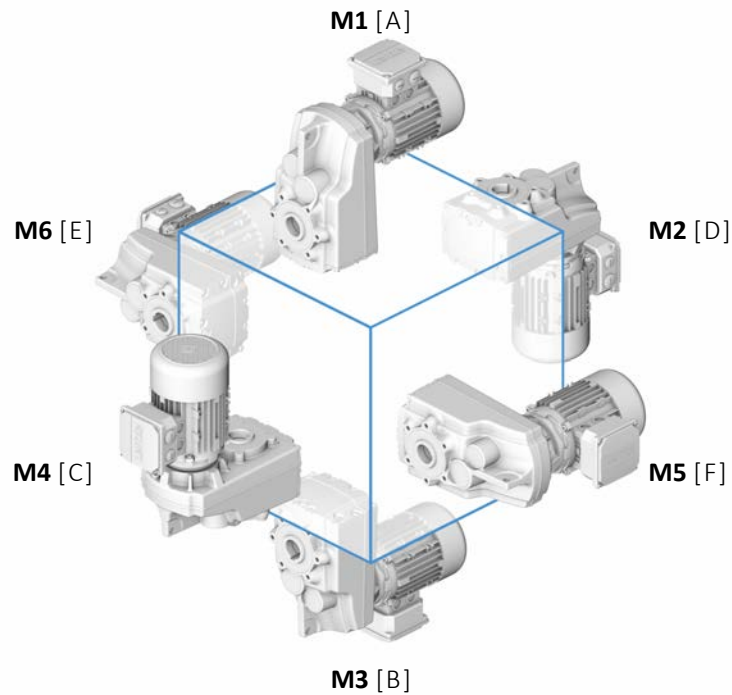


2.4.2 Mounting positions

Details of the mounting position are needed to ensure the corresponding lubricant amount, position of the ventilation, oil checks and oil drain plug on the gearbox.



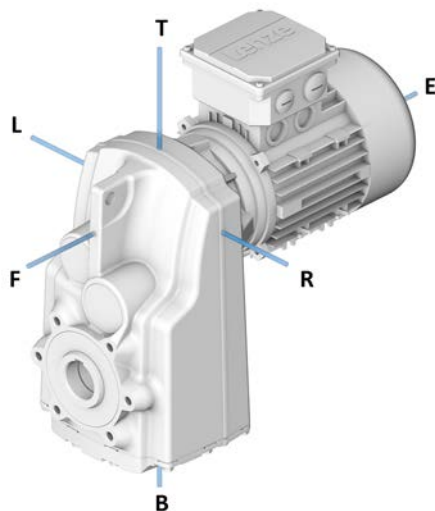
The gearmotors can be swiveled by 5° to 45° in all mounting positions.



Defined positions on the geared motor

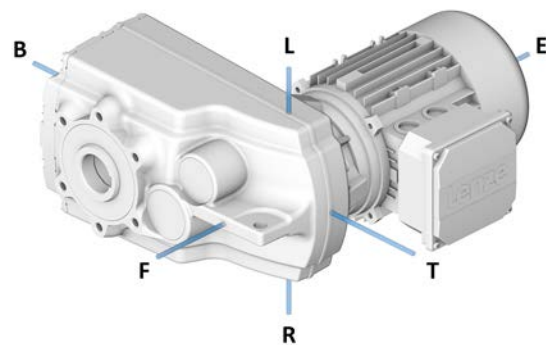
All of the defined positions refer to the areas on the geared motor in mounting position **M1 (A)**.

Position of the built-on accessories with T, L, R, B, F, E (Top, Left, Right, Bottom, Front and End)



If the geared motor is rotated into a different mounting position M2 ... M6 (B...F), the defined positions on the geared motor are retained.

Example: Mounting position M5 (F)



Product information

The modular system
Mounting positions

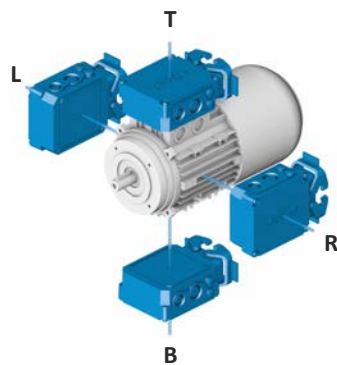
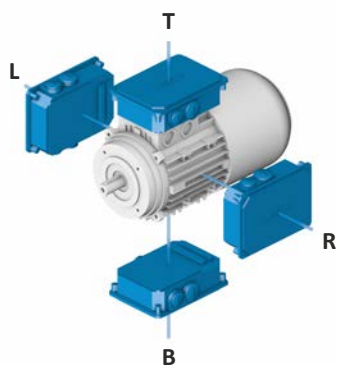


Positions of the terminal boxes/connectors

Power terminal box

with/without M23 connector

Han connector

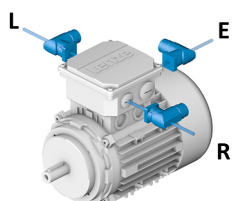


Positions of the connectors

Power terminal box

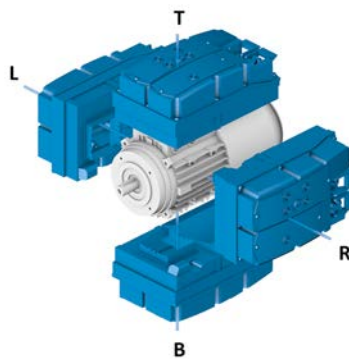
Cable glands/M23 connector

Han connector



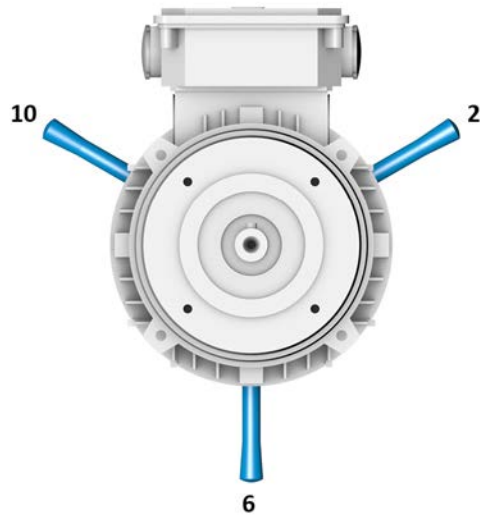
Positions of the i550/i650 motec frequency inverters

Positions of the i550/i650 motec





Manual release lever position

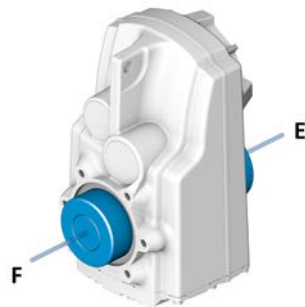


Position of the hollow shaft with shrink disc



The output flange is only available in position "F".

Output flange and shrink disc are not possible in the same position.





3 Safety instructions

3.1 Basic safety instructions

Disregarding the following basic safety instructions and safety information may lead to severe personal injury and damage to property!

- Only use the product as directed.
- Never commission the product in the event of visible damage.
- Never modify the product technically.
- Never commission the product before assembly has been completed.
- Never operate the product without the required covers.
- Connect/disconnect all pluggable connections only in deenergized condition!
- Only remove the product from the installation in the deenergized state.
- The product can – depending on their degree of protection – have live, movable or rotating parts during or after operation. Surfaces can be hot.
- Observe the specifications of the corresponding documentation. This is the condition for safe and trouble-free operation and the achievement of the specified product features.
- The procedural notes and circuit details given in the associated documentation are suggestions and their transferability to the respective application has to be checked. The manufacturer of the product does not take responsibility for the suitability of the process and circuit proposals.
- All work with and on the product may only be carried out by qualified personnel. IEC 60364 and CENELEC HD 384 define the qualifications of these persons:
 - They are familiar with installing, mounting, commissioning, and operating the product.
 - They have the corresponding qualifications for their work.
 - They know and can apply all regulations for the prevention of accidents, directives, and laws applicable at the place of use.

Please observe the specific safety information in the other sections!



3.2 Application as directed

- The product is a piece of professional equipment intended for use by trades, specific professions or industry, and not for sale to the general public. IEC 60050 [IEV 161-05-05]
- To prevent personal injury and damage to property, higher-level safety and protection systems must be used!
- All transport locks must be removed.
- Mounted eye bolts on the motor are not suitable for transporting gearmotors.
- The product may only be operated under the specified operating conditions and in the specified mounting positions.
- The product must be operated with an inverter.
- Only certified application brakes may be used as safety brakes for functional safety.
- The product must not be operated in private areas, in potentially explosive atmospheres and in areas with harmful gases, oils, acids and radiation.



3.3 Foreseeable misuse

- Use in potentially explosive atmospheres
- Use in aggressive environments (acids, gases, vapors, dusts, oils)
- Use under water
- Use under radiation
- Operation on a frequency-rigid mains (public AC system)



3.4 Residual hazards

Even if notes given are taken into consideration and protective measures are implemented, the occurrence of residual risks cannot be fully prevented.

The user must take the residual hazards mentioned into consideration in the risk assessment for his/her machine/system.

If the above is disregarded, this can lead to severe injuries to persons and damage to property!

The user must take the residual hazards mentioned into consideration in the risk assessment for his/her machine/system.

If the above is disregarded, this may result in injuries to persons and material damage!

Product

Observe the warning labels on the product!



Dangerous electrical voltage:

Before working on the product, make sure there is no voltage applied to the power terminals!
After mains disconnection, the power terminals will still carry the hazardous electrical voltage for the time given next to the symbol!



Electrostatic sensitive devices:

Before working on the product, the staff must ensure to be free of electrostatic charge!



High leakage current:

Carry out fixed installation and PE connection in compliance with:
EN 61800-5-1 / EN 60204-1



Hot surface:

Use personal protective equipment or wait until the device has cooled down!

Protection of persons

- The power terminals may carry voltage in the switched-off state or when the motor is stopped.
 - Before working, check whether all power terminals are deenergized.
- Voltages may occur on the drive components (e.g. capacitive, caused by inverter supply).
 - Careful earthing in the marked positions of the components must be carried out.
- There is a risk of burns from hot surfaces.
 - Provide protection against accidental contact.
 - Use personal protective equipment or wait until the device has cooled down.
 - Prevent contact with flammable substances.
- There is a risk of injury due to rotating parts.
 - Before working on the drive system, ensure that the motor is at a standstill.
- There is a risk of accidental start-up or electric shock.



Gearbox protection

- Excessive vibration accelerations and resonances will damage the gearbox.
 - Do not operate the gearbox at vibration accelerations $> 2 \text{ g}$ (20 m/s^2) of the machine.
 - Do not operate the gearbox in the resonance range of the machine.
- Excessive torques will damage the gearboxes.
 - Do not exceed the output torques specified on the nameplate.
- Excessive input speeds lead to increased temperatures.
 - Do not exceed the input speeds specified on the nameplate.
- Avoid excessive lateral forces on the gearbox shaft.
 - Align the shafts of the gearbox and driven machine exactly with each other.
- Machine elements can be damaged by a lack of lubricant.
 - Mount the gearbox only in the mounting position indicated on the nameplate.
 - When changing the lubricant, use the lubricant type and quantity specified on the nameplate.

Motor protection

- Installed temperature contacts are not full protection for the machine.
 - If necessary, limit the maximum current. Parameterize the inverter so that it will be switched off after some seconds of operation with $I > I_{\text{rated}}$, especially if there is a risk of blocking.
 - Integrated overload protection does not prevent overloading under all conditions.
- The fuses are no motor protection.
 - Use a current-dependent motor protection switch.
 - Use the built-in temperature contacts.



4 Information on project planning

4.1 General information

NOTICE

For gearboxes with hollow shaft and shrink disk
observe the following requirements for the machine shaft:

- ▶ Fit tolerance h6
- ▶ Material yield strength $R_e \geq 360 \text{ MPa}$
- ▶ Modulus of elasticity approx. 210000 MPa
- ▶ Surface roughness $R_z \leq 15 \text{ }\mu\text{m}$
- ▶ No radial, axial forces and forces due to stress/rotation permissible

Operation on a frequency inverter

The m550-U, m550-V, and m650-U synchronous motors are optimized for sensorless operation with the i5xx and i6xx frequency inverters. With a frequency inverter operated at 400 V - 480 V, the motor can be operated continuously and efficiently at rated torque in the speed range up to 1860 rpm (m550) or up to 3720 rpm (m650).

On delivery, the frequency inverters are preset for the operation of asynchronous motors. Exceptions are the mounted i550/i650 motec units by Lenze.

Permanent position control during standstill under load can lead to increased gearbox wear.

Ensure that the frequency inverter is operated with the correct motor parameters and in SLSM operating mode.

Further information can be found in the frequency inverter documentation.

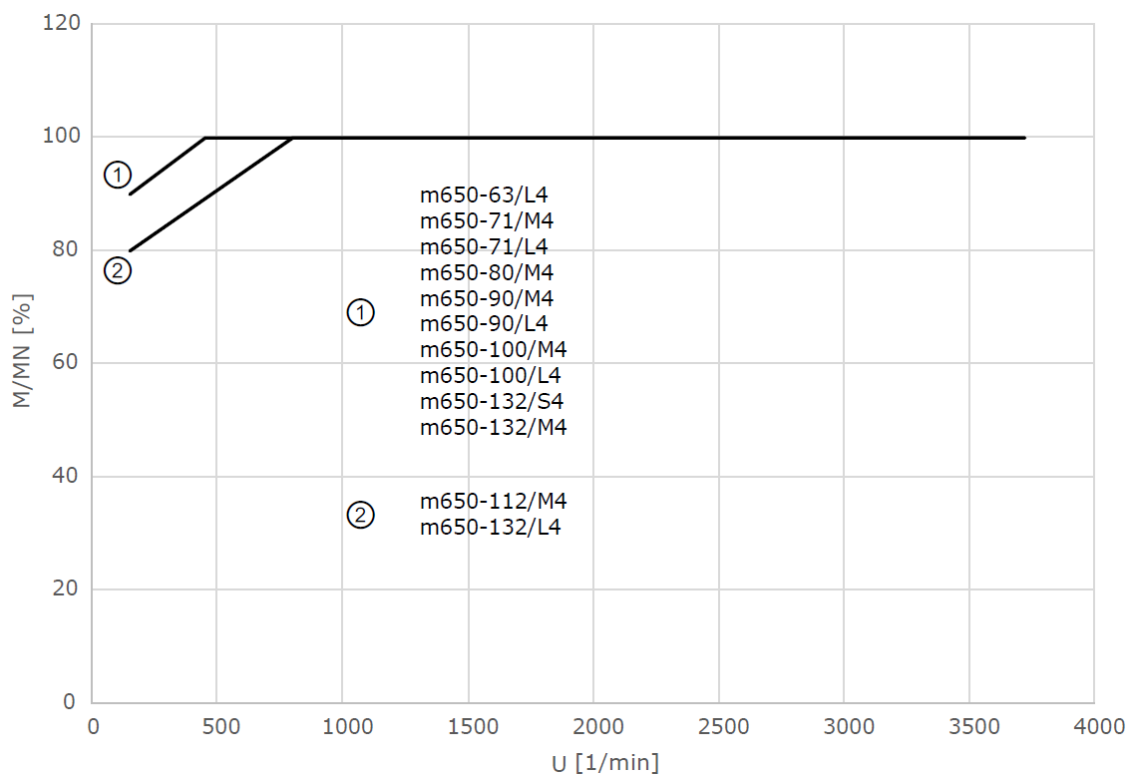
Torque reduction at low motor frequencies

At low motor frequencies (usually $< 20 \text{ Hz}$) and integral-fan operation, the motor is insufficiently cooled at the rated torque. By reducing the torque accordingly, the motor can be operated from 5 Hz.

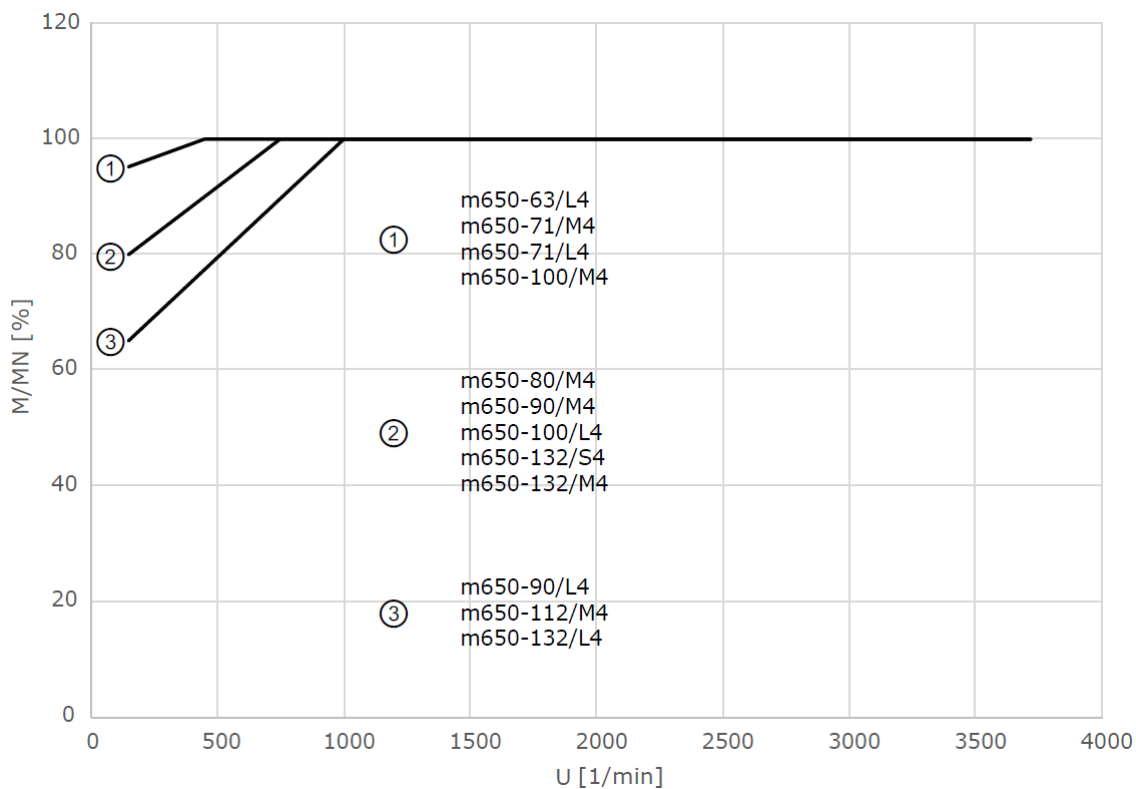


The diagram shows the motor size-dependent torque reduction for self-ventilated motors, taking into account the thermal behavior during operation on the inverter.

Derating wall/control cabinet-mounted inverters in S1 operating mode



Derating i5x0motec/i6x0motec as a drive package in S1 operating mode





Thermal power limit

The thermal power limit, defined by the heat balance, limits the permissible continuous gearbox power. It is affected by

- the churning losses in the lubricant. These are determined by the mounting position and the circumferential speed of the gears
- the load and the speed spectrum.
- the ambient conditions: temperature, air circulation, input or dissipation of heat via shafts and the foundations.

NOTICE

A thermal check using the EASY System Designer (ESD) or consultation with your Lenze representative is required if

- ▶ the input speed $n_1 > 3720$ rpm is exceeded with the gearbox ratios listed below.
- ▶ the input speeds specified below are exceeded depending on the mounting position. For short periods of up to 5 minutes, speeds 30% higher than this are permissible.
- ▶ the ambient temperature is predominantly above +3 0°C.

Gearbox	Ratio i
g500-S2100 ... S4500	≤ 16

Motor	Mounting position M5, M6	Mounting position M1, M3	Mounting position M2, M4
m650-x63 ... x71	4000 rpm	3500 rpm	3000 rpm
m650-x80 ... x100	4000 rpm	3500 rpm	3000 rpm
m650-x112 ... x132	3000 rpm	2600 rpm	1500 rpm

Possible measures for expanding the scope of application

- Shaft sealing rings made of FKM material/Viton (optional)
- Reduction of lubricant quantity (in consultation with Lenze)
- Cooling of the gearmotor by air convection on the machine/system
- A version with a inch shaft is available on request.



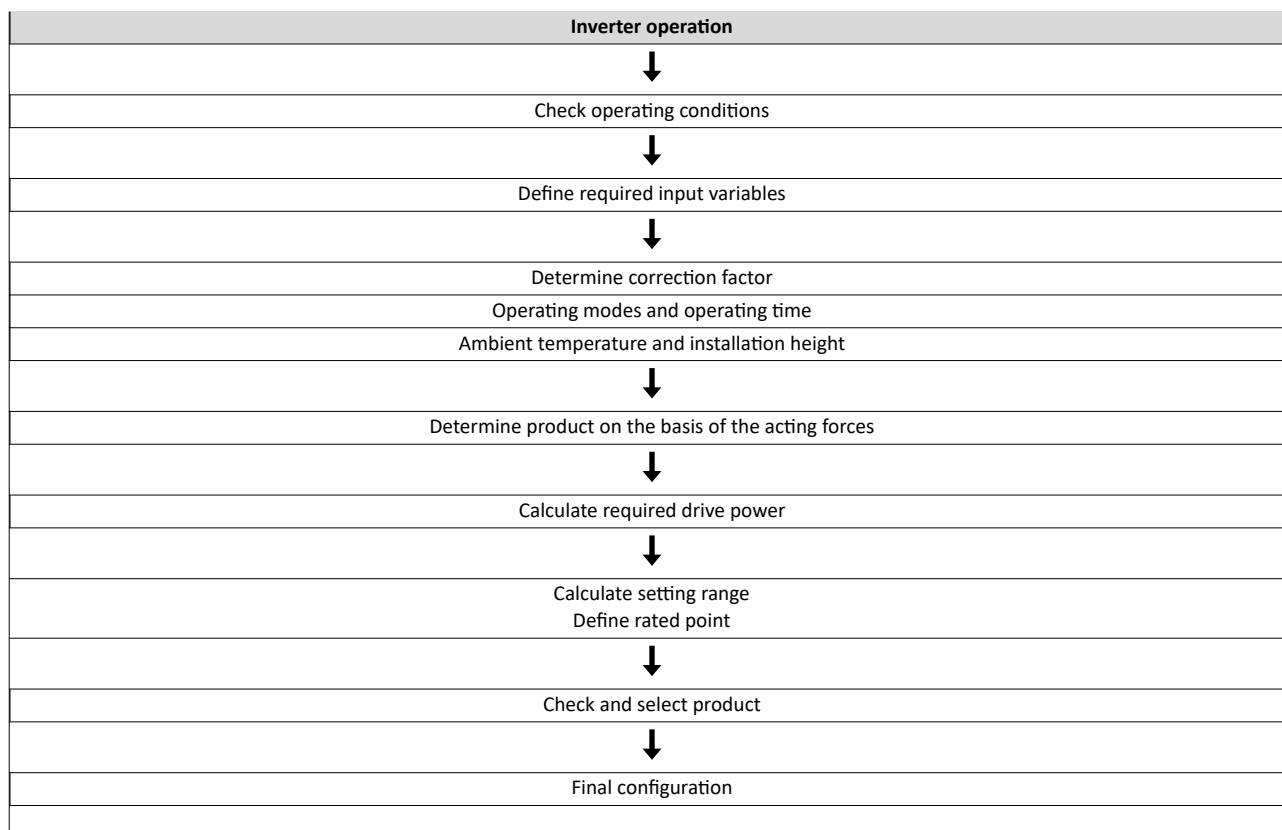
4.2 Drive dimensioning

In order to carry out an accurate drive dimensioning process, you can use our configuring software, the »EASY System Designer«.

With the »EASY System Designer«, you can design the drive both quickly and to a high quality. The software contains profound and proven expertise with regard to drive applications and mechatronic drive components.

Please get in touch with your Lenze representative.

Workflow



Check operating conditions

Check
Approvals Conformities Supply voltage Degree of protection Ambient temperature Surface protection

► [Standards and operating conditions](#) 51

► [Surface and corrosion protection](#) 35



Define required input variables

Necessary input variables	Note	Symbol	Unit
Operating time / day		OD	
Ambient temperature		T_V	°C
Site altitude amsl		H	m
Radial force		F_{rad}	N
Axial force		F_{ax}	N
Transmission element at the output Effective diameter of the transmission element	Gear wheels, sprockets ...	d_w	mm
Load torque	For short-term load peaks	$M_{L,max}$	Nm
	In rated operation	M_L	Nm
	In mains operation, $M_{L,max}/M_L$ should be < 2.0 to guarantee a safe start of the motor		
Load speed		$n_{L,max}$	rpm
	In inverter operation	$n_{L,min}$	rpm
Runtime for $M_{L,max}$	In inverter operation		%
External moments of inertia		J_{ext}	kgcm ²
Switching operations per hour		S_H	1/h

Determine correction factor

Operating modes S1, S2, S3, S6, and operating time							
Operating mode S1		Operating mode S2		Operating mode S3		Operating mode S6	
ED	k_L	ED	k_L	ED	k_L	ED	k_L
%		min		%		%	
100	1.0	10	1.4 - 1.5	15	1.4 - 1.5	15	1.5 - 1.6
		30	1.15 - 1.2	25	1.3 - 1.4	25	1.4 - 1.5
		60	1.07 - 1.1	40	1.15 - 1.2	40	1.3 - 1.4
		90	1.0 - 1.05	60	1.05 - 1.1	60	1.15 - 1.2

► Operating modes of the motor [182](#)

Installation altitude amsl	
≤ 1000 m	≤ 2000 m
Correction factor	
k_H	k_H
1	0.95

Ambient temperature		
≤ 40 °C	≤ 45 °C	≤ 50 °C
Correction factor		
k_{TU}	k_{TU}	k_{TU}
1	0.95	0.90

Mounting position						
Gearbox	Mounting position					
	M1	M2	M3	M4	M5	M6
	Correction factor					
	k_E	k_E	k_E	k_E	k_E	k_E
g500-S	1.00	0.70	0.80	0.85	0.80	0.90

► Selection tables [170](#)



Gearbox efficiency

Gearboxes	Gearbox efficiency	
	η_{c1}	
g500-S		
2-stage	0.96	
3-stage	0.95	
4-stage	0.94	

Determine product on the basis of the forces

Transmission element			Gear wheels	Sprockets	Toothed belt pulleys (depending on the pretension)	Narrow V-belt (depending on the pretension)
Additional radial force factor	f_z		≥ 17 teeth: 1.0 < 17 teeth: 1.15	≥ 20 teeth: 1.0 < 20 teeth: 1.25 < 13 teeth: 1.4	With belt tightener: 2.0 – 2.5 Without belt tightener: 2.5 – 3.0	1.5 – 2.0
			Calculation		Check	
Radial force	F_{rad}	N	$F_{rad} = 2000 \times \frac{M_{L,max} \times f_z}{dw}$		$F_{rad} \leq f_W \times F_{rad,max}$	
Axial force	F_{ax}	N			$F_{ax} \leq F_{rad,max} \times 0.5$	

dw Effective diameter of transmission element in mm

f_w Additional load factor

► [Radial forces and axial forces](#) 68

Calculate drive power

Required Drive power	kW	$P_1 = \frac{M_L \times \eta_{L,max}}{9549 \times k_L \times k_H \times k_{TU} \times \eta_g}$	
----------------------	----	--	--

k_L Correction factor - operating mode

k_{TU} Correction factor - ambient temperature

k_H Correction factor - site altitude

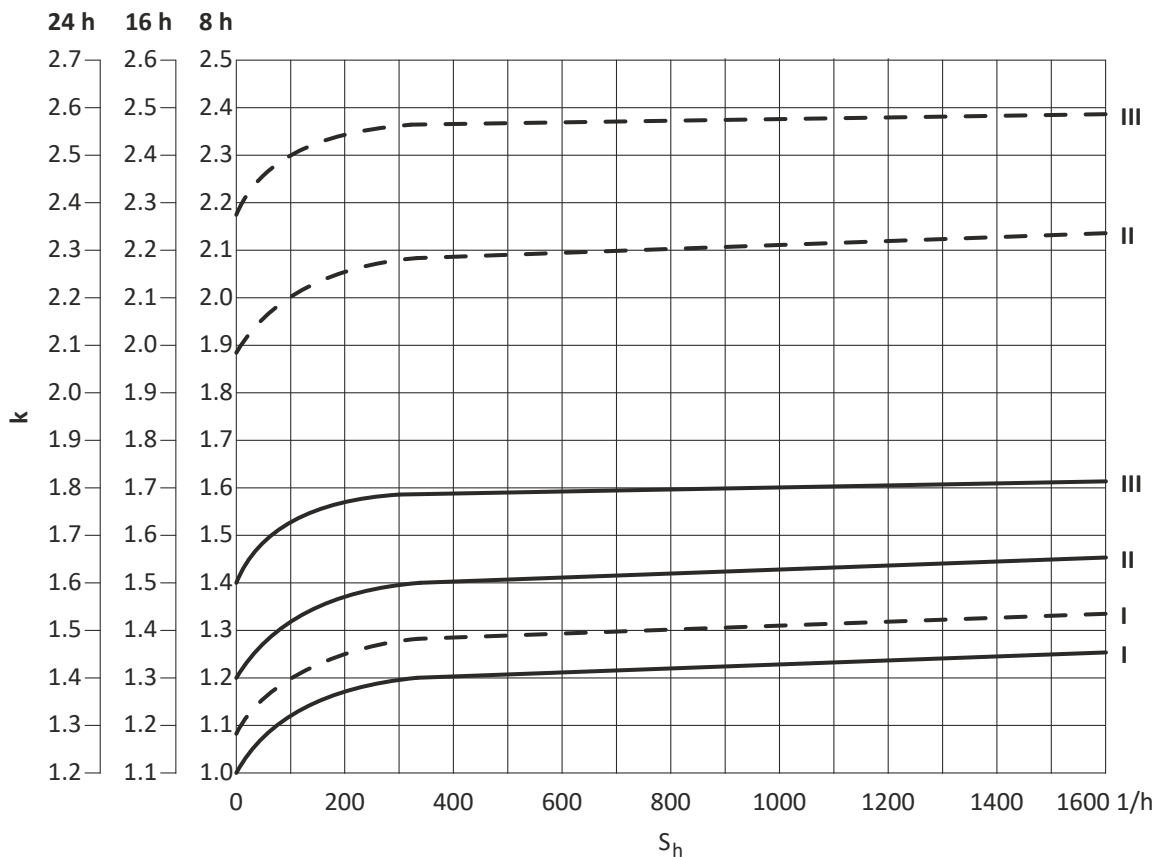
η_g Gearbox efficiency

Intensity and load class for inverter operation

	Calculation	
Intensity	$M_I = \frac{M_{L,max}}{M_L}$	For alternating load, select load class III!
Intensity	Load type	Load class
$M_I \leq 1.5$	Smooth operation, small or light jolts	I
$1.5 < M_I \leq 2$	Uneven operation, average jolts	II
$2 < M_I \leq 2.5$	Uneven operation, severe jolts and/or alternating load	III



Application factor k



k Application factor
 S_h Switching rate
 - - - - Ratio of max. torque/rated torque = 2.5

Stalling torque/rated torque of the motor ▶ [Rated data](#) 178

Inverter operation

Selection table	Check	Unit	Note
Rated frequency	124	Hz	
Rated power	$P_{rated} \geq P_1$	kW	
Output torque	$M_2 \geq M_L$	Nm	The geared motor must be able to provide sufficient torque for $M_{L,max}$.
Max. output speed	$n_2 \approx n_{L,max}$	rpm	
Min. output speed			
Self-ventilated	$n_{21} \approx n_{L,min}$	rpm	Setting ranges ≤ 4.35 (124 Hz)
Self-ventilated (reduced output torque)	$n_{22} \approx n_{L,min}$	rpm	Setting ranges ≤ 17.4 (124 Hz)
Load factor	$c \geq k$		

Order information	Example
Gearmotor	
Gearbox	g500-S130
Motor	m550-U63/L4
Gearbox ratio i	31387
Number of stages	2



4.3 Final configuration

	Check
Connection dimensions	Output shaft Output flange/foot
Mounting position	Geared motor Connector/terminal box Output shaft/output flange
Product extensions	Torque plate Shaft cover Connector/terminal box Brake Temperature monitoring ...

Further information on final project planning:

- ▶ [The modular system](#)  14
- ▶ [Product extensions](#)  145



4.3.1 Surface and corrosion protection

Depending on the ambient conditions, the surface and corrosion protection system (called OKS) offers tailor-made solutions for optimum protection.

Various surface coatings ensure reliable functioning even at high air humidity, in outdoor installations, or in the presence of atmospheric contamination. Any color from the "RAL Classic" collection can be chosen for the top coat.

For indoor installation in buildings and if no special corrosion protection is required, the products are also available unpainted (without surface and corrosion protection system).



Without OKS (unpainted):

The aluminum parts are uncoated and cast iron parts primed with gray paint. Slight color differences between the components are possible.

Surface and corrosion protection	Applications	Product	
		g500-H45 ... H450 g500-S130 ... S660 g500-B45 ... B450	g500-H600 ... H1500 g500-S950 ... S4500 g500-B600 ... B1500
Without OKS (unpainted)	- Indoor installation, no special corrosion protection necessary - Painting by customer	Default	-
OKS-G (primed)	Dependent on subsequent top coat applied	Optionally	Optionally
OKS-S (small)	- Standard applications - Indoor installation in heated buildings - Air humidity up to 90 %		Default
OKS-M (medium)	- Indoor installation in unheated buildings - Covered, protected outdoor installation - Air humidity up to 95 %		Optionally
OKS-L (large)	- Outdoor installation - Chemical industrial plants - Food industry - Air humidity above 95 %		

Surface and corrosion protection	Corrosivity category	Surface coating	Color	Coating thickness
	DIN EN ISO 12944-2	Design		
Without OKS (unpainted)	-	Dip priming of the gray cast iron parts	-	30 ... 50 µm
OKS-G (primed)	-	- Dip priming of the gray cast iron parts 2K PUR priming coat	-	80 ... 120 µm
OKS-S (small)	Comparable to C1	- Dip priming of the gray cast iron parts 2K-PUR top coat	- Standard: RAL 7012 - Optional: According to RAL Classic possible	80 ... 120 µm
OKS-M (medium)	Comparable to C2	Dip priming of the gray cast iron parts		110 ... 160 µm
OKS-L (large)	Comparable to C3	2K PUR priming coat 2K-PUR top coat		140 ... 200 µm



4.3.2 Temperature ranges

Temperature packages

The following temperature packages are available to suit your ambient conditions:

- Standard

On request:

- Deep-freeze
- Wide range



Observe the instructions given for the temperature packages!

For ambient temperatures < 0 °C or > +40 °C please contact your responsible Lenze sales company.

Temperature packages	
Standard	
Ambient temperature	0 °C ... +40 °C
Lubricant	Mineral oil • CLP 460 Synthetic oil • CLP HC 220 Food-grade oil • CLP HC 220 USDA H1
Note	At an ambient temperature predominantly above +30 °C: • Verification of the application by Lenze required.



4.3.3 Lubricants

The following gearboxes are lubricated for life:

- g500-S130

Recommended lubricants:

Lubricant	CLP 460	CLP HC 220 NSF H1	CLP HC 220	CLP HC 320
Ambient temperature	0 ... +40 °C	-20 ... +40 °C	-30 ... +40 °C	-20 ... +50 °C
Specification	Mineral oil with EP additives	Synthetic oil (polyalfaolefins basis)	Synthetic oil (polyalfaolefins basis)	
Change interval				
Operating hours	16000		25000	
Not later than after	3 years		4 years	
At oil temperature	70 °C		70 °C	
Fuchs	Renolin CLP 460	Cassida Fluid GL 220	Renolin Unisyn XT 220	Renolin Unisyn XT 320
Klüber	Klüberoil GEM 1-460 N	Klüberoil 4 UH1-220 N	Klübersynth GEM 4-220 N	Klübersynth GEM 4-320 N
Shell	Shell Omala S2 GX 460		Shell Omala S4 GXV 220	Shell Omala S4 GXV 320

Lubricant amounts for stocking

All lubricant amounts are reference values for a change of lubricant. They serve stocking purposes, for example. The specified values may vary if the unit is installed in a tilted position.

The exact values can be found on the nameplate.

Mounting position		M1 (A)	M2 (D)	M3 (B)	M4 (C)	M5 (F)	M6 (E)	M1, M5, M6 (AEF)
Gearboxes								
g500-S130	I	0.7	0.8	0.7	0.7	0.6	0.6	0.7
g500-S220	I	1.1	1.1	.9	1.1	1.0	0.8	1.1
g500-S400	I	1.6	1.3	1.2	1.5	1.3	1.1	1.6
g500-S660	I	2.5	2.4	1.8	2.4	1.9	1.9	2.5
g500-S950	I	2.9	3.2	2.4	3.2	2.4	2.4	-
g500-S2100	I	7.1	7.5	6.0	7.5	5.6	5.5	-
g500-S3100	I	9.7	10.6	8.0	11.7	8.7	7.3	-
g500-S4500	I	19.4	20.0	13.7	21.2	14.7	15.8	-
Pre-stage	I	0.4						

► Gearbox with pre-stage  139



4.3.4 Ventilation



No venting measures are required for the g500-S130 ... S220 gearboxes.

The g500-S220 gearbox can optionally be equipped with a breather element.

From g500-S400 onwards, the gearboxes are supplied with breather elements as standard.

To reduce the number of different versions, the following gearboxes can also be ordered with combined mounting positions:

- g500-S130 ... S660 in mounting position M1/5/6 (AEF)



In these gearboxes, the lubricant amount has been optimised for the use in different mounting positions. If required, the breather elements are loosely enclosed and must be mounted before commissioning depending on the mounting position.

NOTICE

- For gearboxes with ventilation, a gap of at least 30 mm has to be observed to the machine wall on the corresponding gearbox side.

g500-S220

Mounting position		
M1 (A)	M2 (D)	M3 (B)
M1	M2	M3
M4 (C)	M5 (F)	M6 (E)
M4	M5	M6

Ventilation

Change oil

Fill oil

Oil level



g500-S400

Mounting position		
M1 (A)	M2 (D)	M3 (B)
M1	M2	M3
M4 (C)	M5 (F)	M6 (E)
M4	M5	M6

⌵ Ventilation

↻ Change oil

⬇ Fill oil

📊 Oil level

g500-S660

Mounting position		
M1 (A)	M2 (D)	M3 (B)
M1	M2	M3
M4 (C)	M5 (F)	M6 (E)
M4	M5	M6

⌵ Ventilation

↻ Change oil

⬇ Fill oil

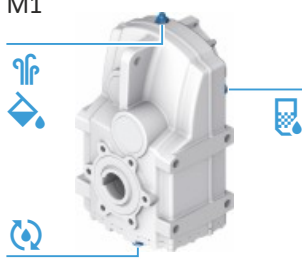
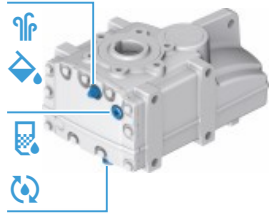
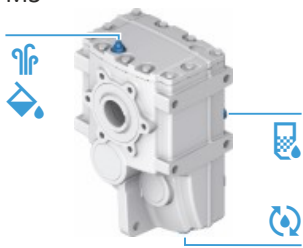
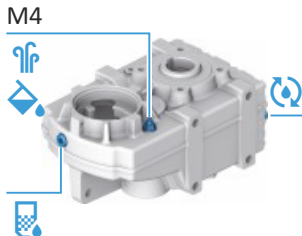
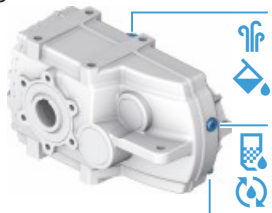
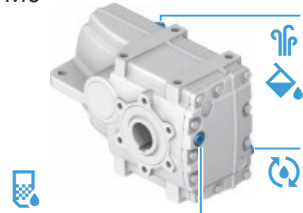
📊 Oil level

Information on project planning

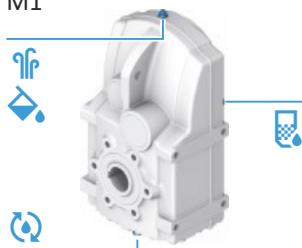
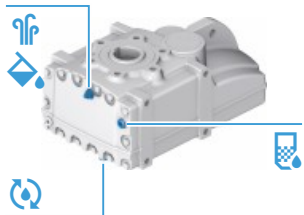
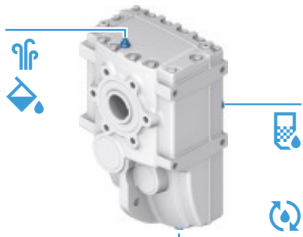
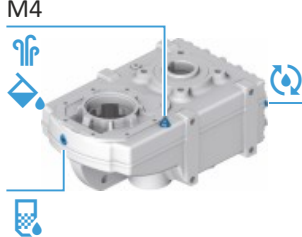
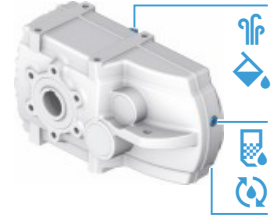
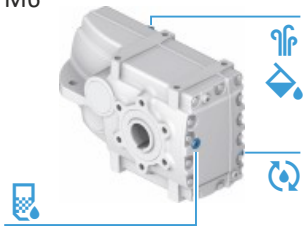
Final configuration
Ventilation



g500-S950

Mounting position			
M1 (A)	M2 (D)	M3 (B)	
M1 	M2 	M3 	
M4 (C)	M5 (F)	M6 (E)	
M4 	M5 	M6 	
 Ventilation	 Change oil	 Fill oil	 Oil level

g500-S2100

Mounting position			
M1 (A)	M2 (D)	M3 (B)	
M1 	M2 	M3 	
M4 (C)	M5 (F)	M6 (E)	
M4 	M5 	M6 	
 Ventilation	 Change oil	 Fill oil	 Oil level



Information on project planning

Final configuration
Ventilation

g500-S3100

Mounting position		
M1 (A)	M2 (D)	M3 (B)
M1	M2	M3
M4 (C)	M5 (F)	M6 (E)
M4	M5	M6

🌀 Ventilation

🔄 Change oil

⬇️ Fill oil

📊 Oil level

g500-S4500

Mounting position		
M1 (A)	M2 (D)	M3 (B)
M1	M2	M3
M4 (C)	M5 (F)	M6 (E)
M4	M5	M6

🌀 Ventilation

🔄 Change oil

⬇️ Fill oil

📊 Oil level



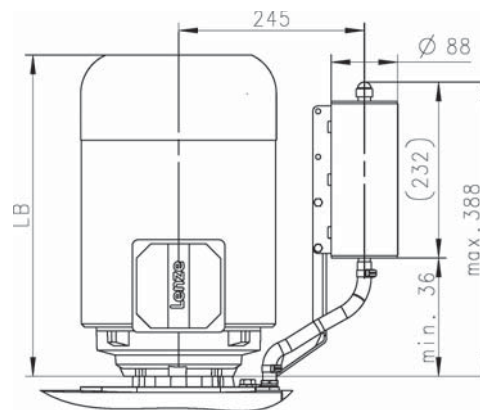
Gearbox with oil compensation reservoir for mounting position M4 (C)

In order to guarantee a reliable lubrication of the toothed parts in mounting position M4 (C) (motor is on the gearbox vertical from the top), a high filling level is required in the gearbox. As a result of the reduced volume of air in the gearbox, this may lead to oil escaping from the ventilation at higher input speeds. The oil compensation reservoir increases the expansion space for the lubricant.

The oil compensation reservoir can be ordered as a mounting set for fastening to the gearbox.

If insufficient space is available, the oil compensation reservoir can also be mounted over the gearbox hose connection on nearby system parts.

Dimensions of the oil compensation reservoir



8800783-00

For the following gearboxes in mounting position M4 (C), which exceed the specified min. input speed, an oil expansion reservoir is required depending on the specified gear ratio:



Information on project planning

Final configuration
Ventilation

g500-S2100		g500-S3100		g500-S4500	
Gearbox ratio	Min. input speed	Gearbox ratio	Min. input speed	Gearbox ratio	Min. input speed
	rpm		rpm		rpm
4.593	2000	4.951	2000	4.914	2000
6.029	2000	6.499	2000	6.450	2000
6.870	2000	7.406	2000	7.056	2000
8.272	2000	8.917	2000	8.944	2000
9.452	2000	10.932	2000	9.984	2000
10.504	2000	11.128	2000	11.740	2000
12.406	2000	12.584	2000	12.843	2000
13.787	2000	14.606	2000	13.105	2000
14.137	2000	16.517	2000	14.336	2000
15.711	2000	16.644	2000	16.381	2000
17.022	3000	18.822	2000	18.286	2000
18.917	3000	20.041	3000	20.067	2000
20.869	3000	22.663	3000	22.400	2000
23.193	3000	24.570	3000	26.437	3000
28.275	3000	27.785	3000	29.511	3000
31.422	3000	33.289	3000	32.489	3000
34.333	3000	37.644	3000	36.267	3000
38.156	3000	40.422	3000	42.044	3000
44.431	4000	45.711	3000	46.933	3000
49.378	4000	52.311	4000	51.027	4000
53.924	4000	59.156	4000	56.960	4000
59.927	4000	63.487	4000	64.500	4000
68.162	4000	71.793	4000	72.000	4000
75.750	4000				



5 Mechanical installation

5.1 Important notes

- Install the product according to the information in the chapter "Standards and operating conditions".
 - ▶ [Standards and operating conditions](#)  51
- The technical data and the data regarding the supply conditions can be found on the nameplate and in this documentation.
- Ambient media – especially chemically aggressive ones – may damage shaft sealing rings, lacquers and plastics.
- Lenze offers special surface and corrosion protection in this case.



5.2 Transport

CAUTION!

Danger from tipping and falling loads!

Standing beneath suspended loads is prohibited!

Possible consequences: Minor or moderate injuries.

- ▶ To achieve a load direction that is as vertical as possible (maximum load-bearing capacity), use additional, suitable load carriers if necessary. Secure the load carrier against slipping!
- ▶ Screw in the transport aids completely. They must lie flat and over the entire surface!
- ▶ Load the transport aids vertically in the direction of the screw axis! Inclined or lateral tension reduces the load-bearing capacity! Observe the specifications in the DIN 580!

NOTICE

Eye bolts or lifting eyes on the motor are not suitable for transporting geared motors.

Only use these for mounting/dismounting the motor on the gearbox.

Possible consequences: Damage to the geared motor.

- ▶ Only use the threads provided on the gearbox for eye bolts or lifting eyes for transporting the geared motor.

Preconditions

- Ensure appropriate handling.
- Make sure that all component parts are securely mounted. Secure or remove loose component parts.
- Only use safely fixed transport aids (e.g., eye bolts or support plates).
- Do not damage any components during transport.
- Avoid electrostatic discharges on electronic components and contacts.
- Avoid impacts.
- Check the carrying capacity of the hoists and load handling devices. The weights can be found in the shipping documents.
- Secure the load against tipping and falling down.
- Standing beneath suspended loads is prohibited.



The lifting eye is not included in the scope of supply!

Position of the lifting eye

Geared motor		
	Lifting eye on the housing	
G50BS113Mxxxxxx		•
G50BS122Mxxxxxx		•
G50BS140Mxxxxxx		•
G50BS166Mxxxxxx		•
G50BS195Mxxxxxx		•
G50BS221Mxxxxxx		•
G50BS231Mxxxxxx		•
G50BS245Mxxxxxx		•
G50BS280Mxxxxxx		•
G50BS314Mxxxxxx		•
G50BS319Mxxxxxx		•



5.3 Installation

Ventilation elements

Gearboxes that are supplied with a pre-assembled ventilation element:

- The ventilation element is identified by a sign on the gearbox.
- Remove the transport lock from the ventilation element before initial commissioning.

Gearboxes that are supplied with a loosely attached ventilation element:

- Before commissioning for the first time, install the ventilation element according to the mounting position.

Mounting surfaces

- The mounting surfaces must be plane, torsionally rigid and free from vibrations.
- The mounting areas must be suited to absorb the forces and torques generated during operation.
- Ensure an unhindered ventilation.
- For versions with a fan, keep a minimum distance of 10 % from the outside diameter of the fan cover in intake direction.



6 Electrical installation

6.1 Important notes

DANGER!

Risk of injury and risk of burns from dangerous voltage

Power terminals may also carry voltage in the switched-off state or when the motor is stopped and may cause life-threatening cardiac arrhythmia and serious burns.

- ▶ Disconnect the product from the mains.
- ▶ Check that the power terminals are deenergized before starting work.

-
- When working on energized products, comply with the applicable national accident prevention regulations.
 - The electrical installation must be carried out according to the appropriate regulations (e.g. cable cross-sections, fuses, PE connection).
 - The manufacturer of the system or machine is responsible for adherence to the limits required in connection with EMC legislation.

Connection for high leakage current

If the leakage current is greater than 3.5 mA for alternating current or greater than 10 mA for direct current, the standard EN 61800-5-1 requires that at least one or more of the following measures be met:

- The minimum PE conductor cross-section is 10 mm² with Cu or 16 mm² with Al.
- Attachment of an additional protective grounding conductor with the same cross-section as the original protective grounding conductor.
 - Do not place the additional terminal on the same terminal.
- Provide automatic disconnection of the mains in case of interruption of the protective conductor.

▶ [Connection options](#)  147

Operation on an external inverter

A max. pulse voltage amplitude of $U_{pk} = 1560 \text{ V}$ at the motor terminals must not be exceeded.

Here, the minimum pulse rise time must be $t_r = 0.1 \text{ } \mu\text{s}$.

If it cannot be ruled out that the permissible voltage peaks will be exceeded or that the minimum pulse rise time will not be reached, the following measures must be initiated:

- Reduction of the DC-bus voltage (threshold for brake chopper voltage)
- Use of filters, chokes
- Use of special motor cables



6.2 Preparation

EMC-compliant wiring



The EMC-compliant wiring is described in detail in the documentation of the Lenze inverters.



7 Technical data

7.1 Notes regarding the given data

Catalog data

The power values, torques and speeds specified in the configuration are rounded values and apply to:

- Operating time per day = 8 hrs (100 % ED)
- Duty class up to 10 switching operations per hour
- Ambient temperature = 0 ... +40 °C
- Site altitude ≤ 1000 m above mean sea level
- The selection tables indicate the mechanically permissible power levels and torques.
- The specified rated data apply to operating mode S1 (acc. to EN 60034-1).

NOTICE

In case of other operating conditions, the achievable values can differ for those mentioned.

► In case of extreme operating conditions, please get in touch with your Lenze representative.



7.2 Standards and operating conditions

7.2.1 Conformities and approvals

More information and certificates of approval can be found under

[g500 + m500 shaft-mounted helical geared motors \(Lenze.com\)](https://www.lenze.com/g500+m500-shaft-mounted-helical-geared-motors)

Europe					
Country	Conformity/ approval	Law/standard	Description	Special feature	Product representation
European Union	CE	2006/42/EC	Machinery Directive	Only for safety-relevant components	CE mark
		2011/65/EU	RoHS	-	
		2014/30/EU	EMC Directive		
		2014/35/EU	Low-Voltage Directive		
Great Britain	UKCA	S.I. 2008/1597	The Supply of Machinery (Safety) Regulations 2008	Only for safety-relevant components	UKCA mark
		S.I. 2012/3032	The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012	-	
		S.I. 2016/1091	The Electromagnetic Compatibility Regulations 2016		
		S.I. 2016/1101	The Electrical Equipment (Safety) Regulations 2016		

America					
Country	Conformity/ approval	Law/standard	Description	Special feature	Product representation
Canada	CSA	CSA 22.1 No. 100	CSA Standard for Motors and Generators	-	cULus mark
USA	UL	UL 1004-1	UL Standard for Rotating Electrical Machines		

Asia					
Country	Conformity/ approval	Law/standard	Description	Special feature	Product representation
China	-	GB 30253	Minimum allowable values of energy efficiency and energy efficiency grades for permanent magnet synchronous motors	in preparation	CEL mark
		GB/T 26572	Requirements on concentration limits for certain restricted substances in electrical and electronic products		EFUP mark

7.2.2 Protection of persons and device protection

Degree of protection			
EN	EN IEC 60529,EN IEC 60034-5	IP54	Information applies to the mounted and ready for-use state
		IP55	
Temperature class			
-	EN IEC 60034-1	F (155 °C)	Insulation system
Utilization		B (130 °C)	Utilization
Permissible voltage			
-	IEC 60034-18-41	IVIC C	At 500 V

7.2.3 EMC data

Noise emission		
-	EN IEC 60034-1	A final overall assessment of the drive system is indispensable
Interference immunity		
-	EN IEC 60034-1	A final overall assessment of the drive system is indispensable

Technical data

Standards and operating conditions
Environmental conditions



7.2.4 Environmental conditions

Energy efficiency			
Efficiency level	EN IEC 60034-30-2	Energy efficiency class IE5	
Installation altitude			
0 ... 1000 m amsl	-	Without current derating	
Air humidity			
-	-	Average relative humidity 85 %	Without condensation



7.3 Gearbox data

The following tables contain the most important data of the gearbox for attachable motors of a geared motor.

The specified data for speed, torque, and power are valid at

- input speed $n_1 = 3720$ rpm
- Application factor $c = 1.0$

In order to calculate the exact ratio, the number of teeth z_g (driven) can be divided by the number of teeth z_t (driving).

g500-S130, 2-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
$M_{2, \max}$	i	z_g	z_t	Standard
Nm				'
63.0	3.661	637	174	19
76.0	5.021	728	145	18
87.0	6.425	559	87	18
92.0	7.029	5096	725	18
116	8.322	749	90	13
125	9.411	847	90	12
130	11.413	856	75	13
130	12.907	968	75	12
130	14.606	4601	315	12
130	15.979	5992	375	12
130	18.069	6776	375	12
130	20.381	428	21	13
130	23.048	484	21	12
130	24.967	749	30	12
130	28.233	847	30	12
130	31.387	2354	75	12
130	35.493	2662	75	12
130	40.422	1819	45	12
130	45.711	2057	45	12
130	51.230	8453	165	12
130	57.933	869	15	11
130	64.200	321	5	12
130	72.600	363	5	11



g500-S220, 2-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
M _{2, max}	i	z _g	z _t	'
Nm				
178	3.840	553	144	16
181	5.267	79	15	16
220	6.767	203	30	13
217	7.667	23	3	12
220	9.280	232	25	13
220	10.514	368	35	12
220	11.876	1247	105	12
220	12.992	1624	125	12
220	13.456	1978	147	12
220	14.720	368	25	12
220	16.571	116	7	12
220	18.776	920	49	12
220	20.300	203	10	12
220	23.000	23	1	11
220	26.422	1189	45	12
220	29.937	1886	63	11
220	32.867	493	15	12
220	37.238	782	21	11
220	42.533	638	15	12
220	48.190	1012	21	11
220	51.620	2581	50	11
220	58.486	2047	35	11
171	65.975	2639	40	11
194	74.750	299	4	11

g500-S220, 3-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
M _{2, max}	i	z _g	z _t	'
Nm				
220	40.012	13804	345	13
220	45.333	136	3	12
220	52.587	3944	75	12
220	59.581	6256	105	12
220	67.298	21199	315	12
220	76.249	33626	441	12
220	86.079	5423	63	12
220	97.528	43010	441	12
220	111.747	8381	75	12



g500-S400, 2-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
M _{2, max}	i	z _g	z _t	
Nm				'
203	3.339	581	174	16
243	4.579	664	145	16
258	5.860	3569	609	13
261	6.411	4648	725	12
365	7.467	112	15	13
380	8.436	329	39	12
400	10.240	256	25	12
400	11.569	752	65	12
400	13.105	1376	105	12
400	14.336	1792	125	12
400	14.806	4042	273	12
400	16.197	5264	325	12
400	18.286	128	7	12
400	20.659	1880	91	11
400	22.400	112	5	12
400	25.308	329	13	11
400	29.156	1312	45	12
400	32.940	3854	117	11
400	36.267	544	15	12
400	40.974	1598	39	11
314	46.933	704	15	11
348	53.026	2068	39	11
268	56.960	1424	25	11
302	64.354	4183	65	11

g500-S400, 3-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
M _{2, max}	i	z _g	z _t	'
Nm				
400	58.027	4352	75	11
400	65.559	12784	195	11
400	74.260	23392	315	11
400	83.900	68714	819	11
400	94.984	5984	63	11
399	107.314	87890	819	11
400	123.307	9248	75	11
399	139.313	27166	195	11
399	158.019	16592	105	11
400	178.531	48739	273	11
400	204.412	33728	165	11



g500-S660, 2-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
$M_{2, \max}$	i	z_g	z_t	'
Nm				
419	3.920	98	25	14
492	5.376	672	125	13
601	6.417	77	12	11
496	6.880	172	25	13
593	7.311	329	45	11
638	8.800	44	5	10
625	10.027	752	75	10
660	11.262	473	42	10
660	12.320	308	25	10
660	12.832	4042	315	10
660	14.037	5264	375	10
660	15.714	110	7	10
660	17.905	376	21	10
660	19.250	77	4	10
660	21.933	329	15	9
578	25.056	451	18	10
660	28.548	3854	135	9
660	31.167	187	6	10
660	35.511	1598	45	9
545	40.333	121	3	10
620	45.956	2068	45	9
446	48.950	979	20	10
508	55.773	4183	75	9

g500-S660, 3-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
$M_{2, \max}$	i	z_g	z_t	'
Nm				
625	49.867	748	15	10
650	56.818	12784	225	10
660	63.817	8041	126	10
660	69.813	5236	75	10
660	72.713	68714	945	10
660	79.545	89488	1125	10
660	89.048	1870	21	10
660	101.460	6392	63	10
660	109.083	1309	12	10
660	124.289	5593	45	10
660	137.133	2057	15	10
660	156.249	35156	225	10
660	176.611	3179	18	10
660	201.230	27166	135	10
660	223.833	1343	6	10
660	255.034	126242	495	10
603	280.500	561	2	10
660	319.600	1598	5	10



g500-S660, 4-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
$M_{2, \max}$	i	z_g	z_t	
Nm				'
660	318.039	214676	675	11

g500-S950, 2-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
$M_{2, \max}$	i	z_g	z_t	
Nm				'
621	4.380	403	92	15
691	5.391	124	23	14
732	6.038	3472	575	14
783	7.702	1240	161	14
950	9.100	91	10	10
950	10.183	611	60	10
950	11.200	56	5	10
950	12.544	1568	125	9
950	14.037	5264	375	9
950	16.000	16	1	9
950	17.905	376	21	9
950	19.600	98	5	9
950	21.933	329	15	9
950	25.511	1148	45	9
950	28.548	3854	135	9
950	31.267	469	15	9
950	34.989	3149	90	9
950	41.067	616	15	9
950	45.956	2068	45	9
924	49.840	1246	25	9
950	55.773	4183	75	9
668	63.000	63	1	9
736	70.500	141	2	9



g500-S950, 3-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
$M_{2, \max}$	i	z_g	z_t	
Nm				'
950	50.027	3752	75	10
950	55.982	12596	225	9
950	64.022	2881	45	10
950	70.037	26264	375	9
950	71.644	135407	1890	10
950	78.375	88172	1125	9
950	89.333	268	3	10
950	99.968	6298	63	9
950	109.433	3283	30	9
950	122.461	22043	180	9
950	142.437	19229	135	9
950	159.394	129109	810	9
950	177.178	7973	45	9
950	198.270	53533	270	9
950	229.289	10318	45	9
950	256.585	34639	135	9
950	278.273	41741	150	9
950	311.401	280261	900	9
950	355.658	42679	120	9
950	397.999	286559	720	9

g500-S950, 4-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
$M_{2, \max}$	i	z_g	z_t	
Nm				'
950	319.059	1076824	3375	10
950	357.042	3615052	10125	10
950	406.963	10988	27	10
950	455.411	258218	567	10
950	513.607	577808	1125	10



g500-S2100, 2-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
$M_{2, \max}$	i	z_g	z_t	
Nm				'
1331	4.593	689	150	12
1487	6.029	2279	378	11
1487	6.870	371	54	11
1487	8.272	3127	378	11
1866	9.452	4017	425	8
1872	10.504	1313	125	8
2030	12.406	4429	357	7
2047	13.787	4343	315	7
2050	14.137	721	51	7
2050	15.711	707	45	7
2050	17.022	6077	357	7
2050	18.917	5959	315	7
2050	20.869	3193	153	7
2050	23.193	3131	135	7
2050	28.275	1442	51	8
2050	31.422	1414	45	7
2050	34.333	103	3	7
2050	38.156	1717	45	7
2044	44.431	2266	51	7
2050	49.378	2222	45	7
1957	53.924	9167	170	7
2050	59.927	8989	150	7
1454	68.162	4635	68	7
1576	75.750	303	4	7



g500-S2100, 3-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
M _{2, max}	i	z _g	z _t	
Nm				'
1945	40.056	721	18	8
2050	44.515	12019	270	8
2050	54.933	824	15	8
2050	61.049	13736	225	8
2050	70.302	4429	63	8
2050	76.907	5768	75	8
2050	78.128	73831	945	7
2050	85.468	96152	1125	7
2050	98.095	2060	21	8
2050	109.016	6868	63	7
2050	120.167	721	6	8
2050	133.544	12019	90	7
2050	156.407	4223	27	8
2050	173.820	70397	405	7
2050	194.556	1751	9	8
2050	216.215	29189	135	7
2050	251.778	2266	9	8
2050	279.807	37774	135	7
2050	305.567	9167	30	8
2050	339.584	152813	450	7
2050	386.250	1545	4	7
2050	429.250	1717	4	7

g500-S2100, 4-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
M _{2, max}	i	z _g	z _t	
Nm				'
2050	320.263	181589	567	8
2050	350.353	236488	675	8
2050	389.356	3942232	10125	8
2050	446.878	84460	189	8
2050	496.628	281588	567	8
2050	547.426	29561	54	8
2050	608.369	492779	810	8
2050	712.523	173143	243	8
2050	791.846	2886277	3645	8
2050	886.309	71791	81	8
2050	984.979	1196749	1215	8
2050	1146.988	92906	81	8



g500-S3100, 2-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
M _{2, max}	i	z _g	z _t	'
Nm				
1842	4.951	2847	575	10
2110	6.499	3139	483	10
2235	7.406	511	69	9
2264	8.917	4307	483	9
2275	10.932	2263	207	9
3022	11.128	1391	125	6
2965	12.584	1573	125	6
3100	14.606	4601	315	6
3100	16.517	5203	315	6
3100	16.644	749	45	6
3100	18.822	847	45	6
3100	20.041	6313	315	6
3100	22.663	7139	315	6
3100	24.570	3317	135	6
3100	27.785	3751	135	6
3100	33.289	1498	45	6
3100	37.644	1694	45	6
3100	40.422	1819	45	6
3100	45.711	2057	45	6
2587	52.311	2354	45	6
2743	59.156	2662	45	6
2250	63.487	9523	150	6
2408	71.793	10769	150	6

g500-S3100, 3-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
M _{2, max}	i	z _g	z _t	'
Nm				
2958	47.159	12733	270	6
3054	53.330	14399	270	6
3100	64.676	14552	225	6
3100	73.138	16456	225	6
3100	82.769	78217	945	6
3100	90.546	101864	1125	6
3100	93.599	88451	945	6
3100	102.393	115192	1125	6
3100	115.492	7276	63	6
3100	130.603	8228	63	6
3100	141.478	12733	90	6
3100	159.989	14399	90	6
3100	184.146	74579	405	6
3100	208.240	84337	405	6
3100	229.059	30923	135	6
3100	259.030	34969	135	6
3100	296.430	40018	135	6
3100	335.215	45254	135	6
3100	359.758	161891	450	6
3100	406.829	183073	450	6



g500-S3100, 4-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
$M_{2, \max}$	i	z_g	z_t	
Nm				'
3100	316.910	356524	1125	7
3100	358.375	403172	1125	6
3100	404.222	3638	9	7
3100	457.111	4114	9	6
3100	495.172	89131	180	6
3100	559.961	100793	180	6
3100	644.510	522053	810	6
3100	728.838	590359	810	6
3100	801.707	216461	270	6
3100	906.604	244783	270	6
3100	1043.492	1267843	1215	6
3100	1180.024	1433729	1215	6
3100	1298.002	525691	405	6
3100	1467.835	594473	405	6
3100	1679.768	680306	405	6

g500-S4500, 2-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
$M_{2, \max}$	i	z_g	z_t	
Nm				'
2535	7.056	882	125	9
4500	12.843	4816	375	5
4500	14.336	1792	125	4
4500	16.381	344	21	5
4500	18.286	128	7	4
4500	20.067	301	15	5
4500	22.400	112	5	4
4500	26.437	3569	135	5
4500	29.511	1328	45	4
4500	32.489	1462	45	5
4500	36.267	544	15	4
4101	42.044	1892	45	5
4394	46.933	704	15	4
3653	51.027	3827	75	5
3946	56.960	1424	25	4
2488	64.500	129	2	5
2586	72.000	72	1	4



g500-S4500, 3-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
M _{2, max}	i	z _g	z _t	
Nm				'
4150	38.090	49708	1305	5
4291	42.520	18496	435	4
4500	52.794	9503	180	5
4500	58.933	884	15	4
4500	64.978	2924	45	5
4500	72.533	1088	15	4
4500	72.775	81872	1125	5
4500	81.237	30464	375	4
4500	92.825	5848	63	5
4500	103.619	2176	21	4
4500	113.711	5117	45	5
4500	126.933	1904	15	4
4500	148.005	59942	405	5
4500	165.215	22304	135	4
4500	181.396	48977	270	5
4500	202.489	9112	45	4
4500	238.252	32164	135	5
4500	265.956	11968	45	4
4500	289.151	65059	225	5
4500	322.773	24208	75	4
3962	365.500	731	2	5
4410	408.000	408	1	4

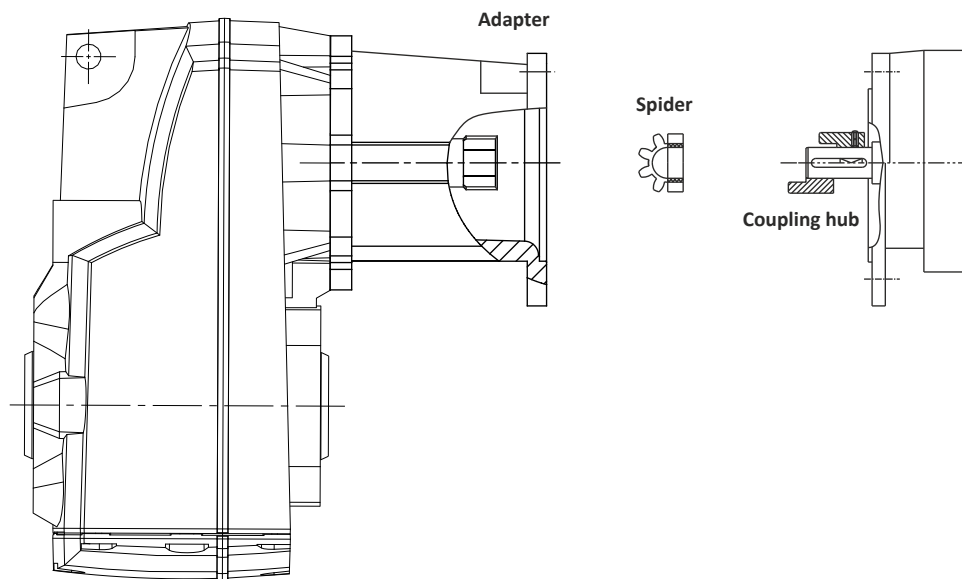
g500-S4500, 4-stage gearboxes

Max. output torque	Ratio	Number of teeth		Max. backlash
				Standard
M _{2, max}	i	z _g	z _t	
Nm				'
4500	324.889	2924	9	5
4500	362.667	1088	3	5
4500	397.989	35819	90	5
4500	444.267	6664	15	5
4500	518.017	209797	405	5
4500	578.252	78064	135	4
4500	634.887	342839	540	5
4500	708.711	31892	45	4
4500	826.361	2008057	2430	5
4500	922.449	373592	405	4
4500	1027.912	832609	810	5
4500	1147.437	154904	135	4
4500	1211.575	490688	405	4
4500	1350.094	546788	405	5
4500	1507.081	203456	135	4
4500	1747.180	707608	405	5
4500	1950.341	263296	135	4
4500	2120.441	1431298	675	5
4500	2367.004	532576	225	4



7.4 Gearboxes with adapter

Versions with flexible coupling



Power is transmitted between the motor and the gearbox via a flexible coupling. The gearbox shaft is designed as a coupling claw on the motor side. The counterpart, the coupling hub, is placed on the motor shaft and secured axially. A spider (elastic ring gear) is located between the two coupling claws, which can absorb shocks and ensures torque transmission with reduced torsional vibration.

- Coupling hub with keyway
 - Form-fit power transmission
 - Suitable for normal operation
- Clamping hub with tangential clamping screw and keyway
 - Form-fit and force-fit power transmission
 - Suitable for reversing duty

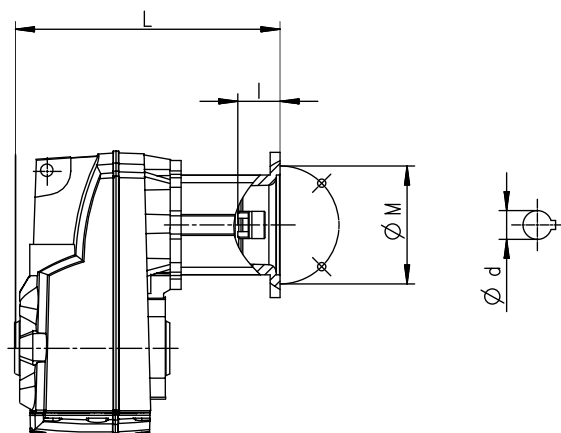


Technical data

Gearboxes with adapter



Dimensions of gearbox with adapter for IEC standard motors



Gearbox dimensions ► [Basic dimensions](#) 107

Versions with flexible coupling

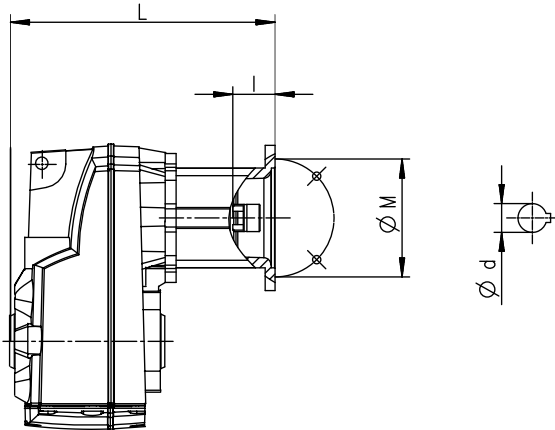
Motor				Adapter		Gearbox g500							
P ₁	Size	Shaft		M	Size	-S130	-S220	-S400	-S660	-S950	-S2100	-S3100	-S4500
kW		d	l	mm		L	L	L	L	L	L	L	L
		mm	mm			mm	mm	mm	mm	mm	mm	mm	mm
0.12 0.18	63	11	23	FF75	N1A	196	212	228	246	-	-	-	-
					N2B	196	212	228	246	255	279	299	-
				FF130	N6C	213	229	245	263	272	296	316	367
0.25 0.37	71	14	30	FF85	N1B	213	229	245	263	272	296	316	-
					N3C	213	229	245	263	272	296	316	367
				FF100	N4C	213	229	245	263	272	296	316	367
				FF130	N2C	213	229	245	263	272	296	316	367
0.55 0.75	80	19	40	FF100	N7C	213	229	245	263	272	296	316	367
				FF130	N1C	213	229	245	263	272	296	316	367
					N2D	242	258	274	292	301	325	345	396
					N3E	-	258	274	292	301	325	345	396
1.1 1.5	90	24	50	FF130	N1D	242	258	274	292	301	325	345	396
					N2E	-	258	274	292	301	325	345	396
					N2F	-	-	-	-	301	325	345	396
				FT165	N4E	-	278	294	312	321	345	365	416
					N3F	-	-	-	-	321	345	365	416
2.2 3.0 4.0	100	28	60	FF130	N1E	-	258	274	292	301	325	345	396
					N1F	-	-	-	-	301	325	345	396
	112			FF215	N2G	-	-	-	-	365	389	409	460
5.5 7.5	132	38	80	FF215	N3G	-	-	-	-	385	409	429	480
				FF265	N1G	-	-	-	-	385	409	429	480
					N3H	-	-	-	-	-	448	468	520
11.0 15.0	160	42	110	FF300	N1H	-	-	-	-	-	478	498	550
18.5 22.0	180	48	110	FF300	N2H	-	-	-	-	-	478	498	550

The N6C adapter is only available with clamping hub.

The N1D adapter is only available with standard and clamping hub.



Dimensions of gearboxes with adapter for servo motors



Gearbox dimensions ▶ [Basic dimensions](#) 107

Versions with servo adapter

Motor			Adapter		Gearbox g500							
M	Shaft		M	Size	-S130	-S220	-S400	-S660	-S950	-S2100	-S3100	-S4500
mm	d	l	mm		L	L	L	L	L	L	L	L
	mm	mm			mm	mm	mm	mm	mm	mm	mm	mm
-75	11	23	FT75	S2B	152	168	184	202	211	235	255	-
	14	30		S3B	152	168	184	202	211	235	255	-
100	14	30	FF100	S4C	167	183	199	217	226	250	270	321
	19	40		S7C	167	183	199	217	226	250	270	321
	16	40		S8C	167	183	199	217	226	250	270	321
115	19	50	FF115	S3D	184	200	216	234	243	267	287	338
	24	50		S4D	184	200	216	234	243	267	287	338
130	19	50	FF130	S2D	184	200	216	234	243	267	287	338
	24	50		S1D	184	200	216	234	243	267	287	338
	24	60		S2E	-	200	216	234	243	267	287	338
	28	60		S1E	-	200	216	234	243	267	287	338
	24	50		S4E	-	200	216	234	243	267	287	338
165	32	58	FF165	S6E	-	200	216	234	243	267	287	338
	28	60		S7E	-	200	216	234	243	267	287	338
	28	60		S7E	-	200	216	234	243	267	287	338



7.5 Radial forces and axial forces

Permissible radial force

The calculation of the permissible radial force must take account of the additional load factor f_w .

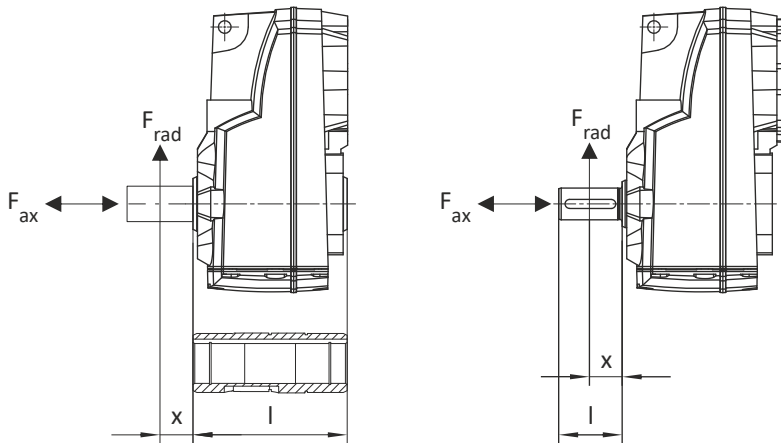
$$F_{\text{rad, perm}} = f_w \times F_{\text{rad, max}}$$

Permissible axial force

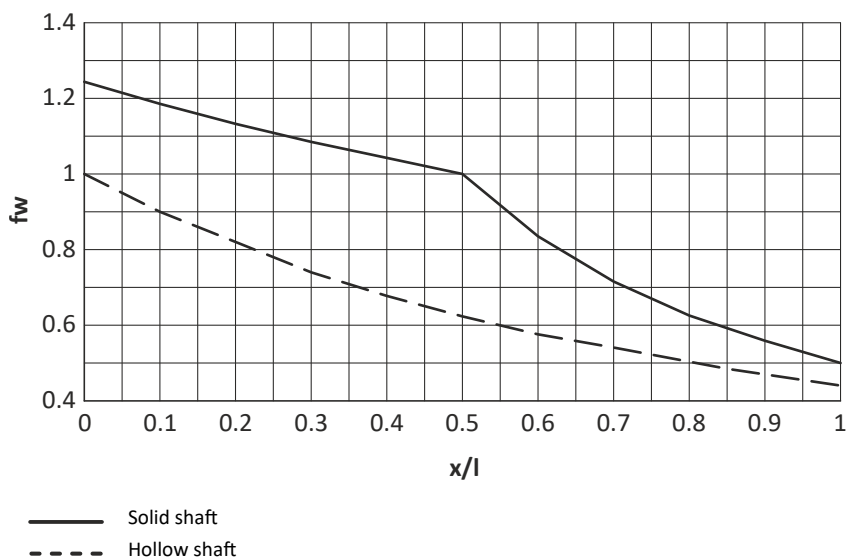
If there is no radial force, the maximum axial force is 50% of the value in the table $F_{\text{rad, max}}$

$$F_{\text{ax, zul}} = 0.5 \times F_{\text{rad, max}}$$

Application of forces



Additional load factor f_w on the drive shaft





The values given in the tables refer to the centre shaft end force application point and are minimum values calculated according to the most unfavourable conditions (force application angle, mounting position, direction of rotation). The values were calculated with a load capacity of $c = 1.3$ and an input speed of 1400 rpm.



In case of different operating conditions, considerably higher forces can be transmitted. Please get in touch with your Lenze representative



A hollow shaft with shrink disc (SAR/SBR/SCR/SDR/SAK/SCK) requires a check by Lenze.

Max. radial force, gearbox with hollow shaft (H□R/H□K)

Getriebe	Output speed n_2 [rpm]									
	1000	630	400	250	160	100	63	40	25	16
	Max. radial force $F_{rad,max}$ [rated]									
g500-S130	1000	1100	1300	1500	1650	2200	2750	3450	4200	4500
g500-S220	2100	2300	2800	3200	3800	4600	5500	6300	7000	7000
g500-S400	2200	2500	3000	3400	4100	5000	6000	7100	8000	8000
g500-S660	2500	2900	3500	4000	5000	6600	8500	10800	12000	12000
g500-S950	3400	4000	4300	5000	6000	8000	10300	11500	12500	13000
g500-S2100	4500	5100	6200	6500	7500	10000	12000	15700	15700	16000
g500-S3100	5200	5700	7000	8000	9000	12500	15000	17000	19800	19800
g500-S4500	11100	12900	15000	17500	19000	20000	23000	30000	30000	30000

Max. radial force, gearbox with solid shaft, without flange (V□R)

Getriebe	Output speed n_2 [rpm]									
	1000	630	400	250	160	100	63	40	25	16
	Max. radial force $F_{rad,max}$ [rated]									
g500-S130	1000	1100	1300	1500	1650	2200	2750	3450	4200	4500
g500-S220	1700	1900	2300	2700	3200	3600	3600	3600	3600	3600
g500-S400	1700	1900	2300	2700	3200	4000	4800	5800	6200	6200
g500-S660	2300	2600	3100	3600	3900	5100	6500	8400	9000	9000
g500-S950	6100	6800	8200	9500	10300	10300	10300	10300	10300	10300
g500-S2100	7500	8200	10000	11500	13600	15700	15700	15700	15700	15700
g500-S3100	9400	10300	12600	14500	16500	18000	19800	19800	19800	19800
g500-S4500	12000	13100	16100	18500	20000	22000	25000	30000	30000	30000

Max. radial force, gearbox with solid shaft and flange (V□K)

Getriebe	Output speed n_2 [rpm]									
	1000	630	400	250	160	100	63	40	25	16
	Max. radial force $F_{rad,max}$ [rated]									
g500-S130	1000	1100	1300	1500	1650	2200	2750	3450	4200	4500
g500-S220	2400	2600	3200	3700	4400	4600	4600	4600	4600	4600
g500-S400	3300	3600	4400	5100	5900	6800	7000	7000	7000	7000
g500-S660	4500	5000	6100	7000	7800	9600	10000	10000	10000	10000
g500-S950	4900	5300	6500	7500	8500	10300	10300	10300	10300	10300
g500-S2100	7400	8200	10000	11500	13600	15700	15700	15700	15700	15700
g500-S3100	12800	14100	17200	19800	19800	19800	19800	19800	19800	19800
g500-S4500	17500	19200	23500	27000	28000	30000	30000	30000	30000	30000



7.6 Selection tables

Notes on the selection tables

The selection tables represent the available combinations of gearbox, number of stages, ratio and motor for the mounting position M1. They only serve as a rough overview.

The following legend shows the layout of the selection tables:

Example	Explanation
120 Hz: $P_{\text{rated}} = 0.55 \text{ kW}$	Rated motor power at a rated frequency of 120 Hz

Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz (1:24)								
n_{22}	M^{22}	n_{21}	M_2	n_2	M_2	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
28.0	5.7	116	9.4	359	9.4	4.8	4033	5185	g500-S130	m650-U U63/L4	2	11
26.8	6.0	111	9.8	344	9.8	3.7	3547	5411	g500-S130	m650-U U63/L4	2	8.9

												Basic weight
												Number of gear stages
												Motor product name
												Gearbox product name
												Ratio
Moment of inertia without brake												
Data at 62/124 Hz n_2 = output speed - M_2 = output torque c = the load capacity of the gearbox is the ratio of the permissible rated torque of the gearbox to the rated torque of the motor (converted to the output shaft). c must always be greater than the application factor determined for the application k $c = \frac{M_{2,zul}}{M_{1,N} \times i \times \eta_{Getr}} > k$												
Data at 20 Hz n_{21} = output speed - M_2 = output torque												



The following selection tables refer exclusively to inverters from the motec series. For all other inverters, please use the EASY System Designer to view the relevant data.



124 Hz: 0.75 kW

Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz							z	m
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i				
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
41.0	6.1	123	6.7	1016	6.7	3.8	4.803	3.661	g500-S130	m650-U63/L4	2	11
29.9	8.3	89.6	9.3	741	9.3	3.8	4.127	5.021	g500-S130	m650-U63/L4	2	11
23.4	10.6	70.2	12.0	580	12.0	3.8	4.816	6.411	g500-S400	m650-U63/L4	2	16
23.3	10.7	70.0	12.0	579	12.0	3.5	3.813	6.425	g500-S130	m650-U63/L4	2	11
21.3	11.7	64.0	13.0	529	13.0	3.5	3.728	7.029	g500-S130	m650-U63/L4	2	11
18.0	13.8	54.1	15.0	447	15.0	3.8	3.925	8.322	g500-S130	m650-U63/L4	2	11
15.9	15.6	47.8	17.0	395	17.0	3.8	4.270	9.411	g500-S130	m650-U63/L4	2	11
13.1	18.9	39.4	21.0	326	21.0	3.8	3.661	11.413	g500-S130	m650-U63/L4	2	11
11.6	21.4	34.9	24.0	288	24.0	3.8	3.844	12.907	g500-S130	m650-U63/L4	2	11
11.5	21.6	34.6	24.0	286	24.0	3.8	3.861	12.992	g500-S220	m650-U63/L4	2	12
10.5	23.8	31.4	26.0	260	26.0	3.8	4.007	14.336	g500-S400	m650-U63/L4	2	16
10.3	24.2	30.8	27.0	255	27.0	3.5	3.528	14.606	g500-S130	m650-U63/L4	2	11
10.2	24.4	30.6	27.0	253	27.0	3.8	3.823	14.720	g500-S220	m650-U63/L4	2	12
9.4	26.5	28.2	29.0	233	29.0	3.3	3.490	15.979	g500-S130	m650-U63/L4	2	11
9.3	26.9	27.8	30.0	230	30.0	3.8	3.944	16.197	g500-S400	m650-U63/L4	2	16
9.1	27.5	27.2	31.0	225	31.0	3.5	3.682	16.571	g500-S220	m650-U63/L4	2	12
8.3	30.0	24.9	33.0	206	33.0	3.3	3.584	18.069	g500-S130	m650-U63/L4	2	11
8.2	30.3	24.6	34.0	203	34.0	4.0	3.771	18.286	g500-S400	m650-U63/L4	2	16
8.0	31.2	24.0	35.0	198	35.0	4.0	3.658	18.776	g500-S220	m650-U63/L4	2	12
7.4	33.8	22.1	38.0	183	38.0	2.9	3.415	20.381	g500-S130	m650-U63/L4	2	11
7.3	34.3	21.8	38.0	180	38.0	4.0	3.732	20.659	g500-S400	m650-U63/L4	2	16
6.5	38.2	19.5	42.0	161	42.0	2.6	3.472	23.048	g500-S130	m650-U63/L4	2	11
6.0	41.4	18.0	46.0	149	46.0	2.4	3.371	24.967	g500-S130	m650-U63/L4	2	11
5.7	43.8	17.0	49.0	141	49.0	3.3	3.449	26.422	g500-S220	m650-U63/L4	2	12
5.3	46.8	15.9	52.0	132	52.0	2.1	3.409	28.233	g500-S130	m650-U63/L4	2	11
5.1	48.4	15.4	54.0	128	54.0	3.3	3.484	29.156	g500-S400	m650-U63/L4	2	16
5.0	49.7	15.0	55.0	124	55.0	3.3	3.439	29.937	g500-S220	m650-U63/L4	2	12
4.8	52.1	14.3	58.0	119	58.0	2.1	3.327	31.387	g500-S130	m650-U63/L4	2	11
4.6	54.5	13.7	61.0	113	61.0	3.1	3.391	32.867	g500-S220	m650-U63/L4	2	12
4.6	54.7	13.7	61.0	113	61.0	3.7	3.468	32.940	g500-S400	m650-U63/L4	2	16
4.2	58.9	12.7	65.0	105	65.0	1.9	3.351	35.493	g500-S130	m650-U63/L4	2	11
4.1	60.2	12.4	67.0	103	67.0	3.1	3.414	36.267	g500-S400	m650-U63/L4	2	16
4.0	61.8	12.1	69.0	99.9	69.0	3.0	3.385	37.238	g500-S220	m650-U63/L4	2	12
3.7	65.4	11.2	73.0	93.0	73.0	2.2	3.443	40.012	g500-S220	m650-U63/L4	3	13
3.7	66.9	11.2	74.0	92.2	74.0	3.1	3.530	40.333	g500-S660	m650-U63/L4	2	21
3.7	67.1	11.1	75.0	92.0	75.0	1.6	3.299	40.422	g500-S130	m650-U63/L4	2	11
3.7	68.0	11.0	76.0	90.8	76.0	3.1	3.404	40.974	g500-S400	m650-U63/L4	2	16
3.5	70.6	10.6	78.0	87.5	78.0	2.6	3.335	42.533	g500-S220	m650-U63/L4	2	12
3.3	74.1	9.9	82.0	82.1	82.0	2.0	3.439	45.333	g500-S220	m650-U63/L4	3	13
3.3	75.8	9.8	84.0	81.4	84.0	1.4	3.314	45.711	g500-S130	m650-U63/L4	2	11
3.3	76.2	9.8	85.0	80.9	85.0	3.1	3.515	45.956	g500-S660	m650-U63/L4	2	21
3.2	77.9	9.6	87.0	79.3	87.0	2.8	3.349	46.933	g500-S400	m650-U63/L4	2	16
3.1	80.0	9.3	89.0	77.2	89.0	2.3	3.331	48.190	g500-S220	m650-U63/L4	2	12
3.1	81.2	9.2	90.0	76.0	90.0	2.7	3.451	48.950	g500-S660	m650-U63/L4	2	21
3.0	81.5	9.0	91.0	74.6	91.0	4.3	3.630	49.867	g500-S660	m650-U63/L4	3	22
2.9	85.0	8.8	94.0	72.6	94.0	1.3	3.279	51.230	g500-S130	m650-U63/L4	2	11
2.9	85.6	8.7	95.0	72.1	95.0	2.2	3.309	51.620	g500-S220	m650-U63/L4	2	12
2.9	85.9	8.6	95.0	70.7	95.0	1.9	3.374	52.587	g500-S220	m650-U63/L4	3	13
2.8	88.0	8.5	98.0	70.2	98.0	2.8	3.343	53.026	g500-S400	m650-U63/L4	2	16
2.7	92.5	8.1	103	66.7	103	2.7	3.441	55.773	g500-S660	m650-U63/L4	2	21
2.6	92.9	7.9	103	65.5	103	4.3	3.621	56.818	g500-S660	m650-U63/L4	3	22



Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
2.6	94.5	7.9	105	65.3	105	2.4	3.319	56.960	g500-S400	m650-U63/L4	2	16
2.6	94.8	7.8	105	64.1	105	3.2	3.382	58.027	g500-S400	m650-U63/L4	3	16
2.6	96.1	7.8	107	64.2	107	1.1	3.288	57.933	g500-S130	m650-U63/L4	2	11
2.6	97.0	7.7	108	63.6	108	1.9	3.307	58.486	g500-S220	m650-U63/L4	2	12
2.5	97.4	7.6	108	62.4	108	1.7	3.371	59.581	g500-S220	m650-U63/L4	3	13
2.4	104	7.1	116	58.3	116	4.0	3.510	63.817	g500-S660	m650-U63/L4	3	22
2.3	107	7.0	118	57.9	118	1.0	3.267	64.200	g500-S130	m650-U63/L4	2	11
2.3	107	7.0	119	57.8	119	2.4	3.314	64.354	g500-S400	m650-U63/L4	2	16
2.3	107	6.9	119	56.7	119	2.8	3.379	65.559	g500-S400	m650-U63/L4	3	16
2.3	110	6.8	122	56.4	122	1.2	3.284	65.975	g500-S220	m650-U63/L4	2	12
2.2	110	6.7	122	55.3	122	1.5	3.332	67.298	g500-S220	m650-U63/L4	3	13
2.1	114	6.4	127	53.3	127	4.0	3.475	69.813	g500-S660	m650-U63/L4	3	22
2.1	115	6.4	127	53.1	127	4.8	3.883	70.037	g500-S950	m650-U63/L4	3	41
2.1	119	6.2	132	51.2	132	4.5	3.504	72.713	g500-S660	m650-U63/L4	3	22
2.1	120	6.2	134	51.2	134	0.9	3.272	72.600	g500-S130	m650-U63/L4	2	11
2.0	121	6.1	135	50.1	135	2.8	3.338	74.260	g500-S400	m650-U63/L4	3	16
2.0	124	6.0	138	49.8	138	1.2	3.283	74.750	g500-S220	m650-U63/L4	2	12
2.0	125	5.9	138	48.8	138	1.5	3.331	76.249	g500-S220	m650-U63/L4	3	13
1.9	128	5.7	142	47.5	142	4.8	3.874	78.375	g500-S950	m650-U63/L4	3	41
1.9	130	5.7	144	46.8	144	4.3	3.470	79.545	g500-S660	m650-U63/L4	3	22
1.8	137	5.4	152	44.3	152	2.4	3.335	83.900	g500-S400	m650-U63/L4	3	16
1.7	141	5.2	156	43.2	156	1.3	3.302	86.079	g500-S220	m650-U63/L4	3	13
1.7	146	5.1	162	41.8	162	3.8	3.405	89.048	g500-S660	m650-U63/L4	3	22
1.7	146	5.0	162	41.6	162	4.5	3.695	89.333	g500-S950	m650-U63/L4	3	41
1.6	155	4.7	172	39.2	172	2.2	3.306	94.984	g500-S400	m650-U63/L4	3	16
1.5	159	4.6	177	38.1	177	1.2	3.301	97.528	g500-S220	m650-U63/L4	3	13
1.5	163	4.5	182	37.2	182	4.5	3.689	99.968	g500-S950	m650-U63/L4	3	41
1.5	166	4.4	184	36.7	184	3.3	3.402	101.460	g500-S660	m650-U63/L4	3	22
1.4	175	4.2	195	34.7	195	1.9	3.304	107.314	g500-S400	m650-U63/L4	3	16
1.4	178	4.1	198	34.1	198	3.1	3.365	109.083	g500-S660	m650-U63/L4	3	22
1.3	183	4.0	203	33.3	203	1.0	3.284	111.747	g500-S220	m650-U63/L4	3	13
1.2	202	3.6	224	30.2	224	1.7	3.286	123.307	g500-S400	m650-U63/L4	3	16
1.2	203	3.6	226	29.9	226	2.7	3.363	124.289	g500-S660	m650-U63/L4	3	22
1.1	224	3.3	249	27.1	249	2.5	3.323	137.133	g500-S660	m650-U63/L4	3	22
1.1	228	3.2	253	26.7	253	1.5	3.285	139.313	g500-S400	m650-U63/L4	3	16
1.1	233	3.2	259	26.1	259	3.4	3.454	142.437	g500-S950	m650-U63/L4	3	41
1.0	255	2.9	284	23.8	284	2.2	3.322	156.249	g500-S660	m650-U63/L4	3	22
0.9	258	2.8	287	23.5	287	1.3	3.272	158.019	g500-S400	m650-U63/L4	3	16
0.9	261	2.8	289	23.3	289	3.1	3.452	159.394	g500-S950	m650-U63/L4	3	41
0.8	289	2.5	321	21.1	321	1.9	3.296	176.611	g500-S660	m650-U63/L4	3	22
0.8	290	2.5	322	21.0	322	2.8	3.394	177.178	g500-S950	m650-U63/L4	3	41
0.8	292	2.5	324	20.8	324	1.2	3.271	178.531	g500-S400	m650-U63/L4	3	16
0.8	324	2.3	360	18.8	360	2.5	3.393	198.270	g500-S950	m650-U63/L4	3	41
0.7	329	2.2	365	18.5	365	1.7	3.296	201.230	g500-S660	m650-U63/L4	3	22
0.7	334	2.2	371	18.2	371	1.0	3.261	204.412	g500-S400	m650-U63/L4	3	16
0.7	366	2.0	406	16.6	406	1.5	3.277	223.833	g500-S660	m650-U63/L4	3	22
0.7	375	2.0	416	16.2	416	2.1	3.337	229.289	g500-S950	m650-U63/L4	3	41
0.6	412	1.8	457	14.8	457	3.1	3.512	251.778	g500-S2100	m650-U63/L4	3	74
0.6	417	1.8	463	14.6	463	1.3	3.277	255.034	g500-S660	m650-U63/L4	3	22
0.6	419	1.8	466	14.5	466	1.9	3.336	256.585	g500-S950	m650-U63/L4	3	41
0.5	455	1.6	505	13.4	505	1.8	3.311	278.273	g500-S950	m650-U63/L4	3	41
0.5	457	1.6	508	13.3	508	3.1	3.510	279.807	g500-S2100	m650-U63/L4	3	74



Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz							z	m
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i				
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
0.5	458	1.6	509	13.3	509	1.0	3.266	280.500	g500-S660	m650-U63/L4	3	22
0.5	484	1.5	538	12.5	538	3.1	3.531	296.430	g500-S3100	m650-U63/L4	3	113
0.5	499	1.5	555	12.2	555	2.7	3.439	305.567	g500-S2100	m650-U63/L4	3	74
0.5	509	1.4	565	11.9	565	1.6	3.310	311.401	g500-S950	m650-U63/L4	3	41
0.5	512	1.4	569	11.7	569	1.1	3.443	318.039	g500-S660	m650-U63/L4	4	25
0.5	514	1.4	571	11.7	571	1.6	3.463	319.059	g500-S950	m650-U63/L4	4	44
0.5	516	1.4	573	11.6	573	3.3	3.530	320.263	g500-S2100	m650-U63/L4	4	77
0.5	522	1.4	580	11.6	580	1.0	3.265	319.600	g500-S660	m650-U63/L4	3	22
0.4	548	1.3	609	11.1	609	3.1	3.525	335.215	g500-S3100	m650-U63/L4	3	113
0.4	555	1.3	617	11.0	617	2.7	3.437	339.584	g500-S2100	m650-U63/L4	3	74
0.4	564	1.3	627	10.6	627	3.1	3.515	350.353	g500-S2100	m650-U63/L4	4	77
0.4	575	1.3	639	10.4	639	1.4	3.462	357.042	g500-S950	m650-U63/L4	4	44
0.4	581	1.3	646	10.5	646	1.2	3.285	355.658	g500-S950	m650-U63/L4	3	41
0.4	588	1.3	653	10.3	653	2.7	3.451	359.758	g500-S3100	m650-U63/L4	3	113
0.4	627	1.2	696	9.6	696	2.7	3.514	389.356	g500-S2100	m650-U63/L4	4	77
0.4	631	1.2	701	9.6	701	2.2	3.369	386.250	g500-S2100	m650-U63/L4	3	74
0.4	650	1.1	723	9.3	723	1.2	3.285	397.999	g500-S950	m650-U63/L4	3	41
0.4	655	1.1	728	9.1	728	1.2	3.454	406.963	g500-S950	m650-U63/L4	4	44
0.4	665	1.1	739	9.1	739	2.7	3.447	406.829	g500-S3100	m650-U63/L4	3	113
0.3	702	1.0	779	8.7	779	2.2	3.367	429.250	g500-S2100	m650-U63/L4	3	74
0.3	719	1.0	799	8.3	799	2.4	3.490	446.878	g500-S2100	m650-U63/L4	4	77
0.3	733	1.0	815	8.2	815	1.1	3.454	455.411	g500-S950	m650-U63/L4	4	44
0.3	799	0.9	888	7.5	888	2.2	3.489	496.628	g500-S2100	m650-U63/L4	4	77
0.3	827	0.9	919	7.2	919	1.0	3.340	513.607	g500-S950	m650-U63/L4	4	44
0.3	881	0.8	979	6.8	979	2.0	3.476	547.426	g500-S2100	m650-U63/L4	4	77
0.2	979	0.7	1088	6.1	1088	1.8	3.475	608.369	g500-S2100	m650-U63/L4	4	77
0.2	1038	0.7	1153	5.8	1153	2.5	3.479	644.510	g500-S3100	m650-U63/L4	4	116
0.2	1147	0.6	1274	5.2	1274	1.5	3.461	712.523	g500-S2100	m650-U63/L4	4	77
0.2	1173	0.6	1304	5.1	1304	2.2	3.478	728.838	g500-S3100	m650-U63/L4	4	116
0.2	1275	0.6	1416	4.7	1416	1.4	3.461	791.846	g500-S2100	m650-U63/L4	4	77
0.2	1291	0.6	1434	4.6	1434	2.0	3.411	801.707	g500-S3100	m650-U63/L4	4	116
0.2	1330	0.5	1478	4.5	1478	2.8	3.498	826.361	g500-S4500	m650-U63/L4	4	191
0.2	1427	0.5	1585	4.2	1585	1.2	3.399	886.309	g500-S2100	m650-U63/L4	4	77
0.2	1459	0.5	1621	4.1	1621	1.8	3.410	906.604	g500-S3100	m650-U63/L4	4	116
0.2	1485	0.5	1650	4.0	1650	2.5	3.497	922.449	g500-S4500	m650-U63/L4	4	191
0.2	1586	0.5	1762	3.8	1762	1.1	3.399	984.979	g500-S2100	m650-U63/L4	4	77
0.1	1655	0.4	1838	3.6	1838	2.3	3.423	1027.912	g500-S4500	m650-U63/L4	4	191
0.1	1680	0.4	1866	3.6	1866	1.6	3.400	1043.492	g500-S3100	m650-U63/L4	4	116
0.1	1846	0.4	2051	3.2	2051	0.9	3.340	1146.988	g500-S2100	m650-U63/L4	4	77
0.1	1847	0.4	2052	3.2	2052	2.0	3.422	1147.437	g500-S4500	m650-U63/L4	4	191
0.1	1900	0.4	2111	3.2	2111	1.4	3.400	1180.024	g500-S3100	m650-U63/L4	4	116
0.1	1950	0.4	2167	3.1	2167	1.9	3.363	1211.575	g500-S4500	m650-U63/L4	4	191
0.1	2089	0.3	2322	2.9	2322	1.2	3.395	1298.002	g500-S3100	m650-U63/L4	4	116
0.1	2173	0.3	2415	2.8	2415	1.7	3.408	1350.094	g500-S4500	m650-U63/L4	4	191
0.1	2363	0.3	2625	2.5	2625	1.1	3.394	1467.835	g500-S3100	m650-U63/L4	4	116
0.1	2426	0.3	2695	2.5	2695	1.6	3.407	1507.081	g500-S4500	m650-U63/L4	4	191
0.1	2704	0.3	3004	2.2	3004	1.0	3.337	1679.768	g500-S3100	m650-U63/L4	4	116
0.1	2812	0.3	3125	2.1	3125	1.3	3.345	1747.180	g500-S4500	m650-U63/L4	4	191
0.1	3139	0.2	3488	1.9	3488	1.2	3.345	1950.341	g500-S4500	m650-U63/L4	4	191
0.1	3413	0.2	3792	1.8	3792	1.1	3.316	2120.441	g500-S4500	m650-U63/L4	4	191
0.1	3810	0.2	4233	1.6	4233	1.0	3.340	2367.004	g500-S4500	m650-U63/L4	4	191



124 Hz: 1.1 kW

Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
41.0	9.0	123	9.9	1016	9.9	4.5	10.313	3.661	g500-S130	m650-U71/M4	2	13
29.9	12.3	89.6	14.0	741	14.0	4.1	9.637	5.021	g500-S130	m650-U71/M4	2	13
25.6	14.3	76.8	16.0	635	16.0	4.4	10.611	5.860	g500-S400	m650-U71/M4	2	18
23.4	15.7	70.2	17.0	580	17.0	4.5	10.326	6.411	g500-S400	m650-U71/M4	2	18
23.3	15.7	70.0	17.0	579	17.0	3.7	9.323	6.425	g500-S130	m650-U71/M4	2	13
21.3	17.2	64.0	19.0	529	19.0	3.6	9.238	7.029	g500-S130	m650-U71/M4	2	13
18.0	20.3	54.1	23.0	447	23.0	3.8	9.435	8.322	g500-S130	m650-U71/M4	2	13
15.9	23.0	47.8	26.0	395	26.0	3.6	9.780	9.411	g500-S130	m650-U71/M4	2	13
13.1	27.9	39.4	31.0	326	31.0	3.1	9.171	11.413	g500-S130	m650-U71/M4	2	13
12.6	29.0	37.9	32.0	313	32.0	4.4	9.469	11.876	g500-S220	m650-U71/M4	2	15
11.6	31.6	34.9	35.0	288	35.0	2.7	9.354	12.907	g500-S130	m650-U71/M4	2	13
11.5	31.8	34.6	35.0	286	35.0	4.5	9.371	12.992	g500-S220	m650-U71/M4	2	15
11.4	32.0	34.3	36.0	284	36.0	4.4	9.643	13.105	g500-S400	m650-U71/M4	2	18
11.1	32.9	33.4	37.0	277	37.0	4.4	9.423	13.456	g500-S220	m650-U71/M4	2	15
10.5	35.1	31.4	39.0	260	39.0	4.5	9.517	14.336	g500-S400	m650-U71/M4	2	18
10.3	35.7	30.8	40.0	255	40.0	2.4	9.038	14.606	g500-S130	m650-U71/M4	2	13
10.2	36.0	30.6	40.0	253	40.0	4.1	9.333	14.720	g500-S220	m650-U71/M4	2	15
10.1	36.2	30.4	40.0	251	40.0	4.4	9.567	14.806	g500-S400	m650-U71/M4	2	18
9.5	38.4	28.6	43.0	237	43.0	4.4	10.263	15.714	g500-S660	m650-U71/M4	2	23
9.4	39.1	28.2	43.0	233	43.0	2.2	9.000	15.979	g500-S130	m650-U71/M4	2	13
9.3	39.6	27.8	44.0	230	44.0	4.5	9.454	16.197	g500-S400	m650-U71/M4	2	18
9.1	40.5	27.2	45.0	225	45.0	3.6	9.192	16.571	g500-S220	m650-U71/M4	2	15
8.4	43.8	25.1	49.0	208	49.0	4.4	10.165	17.905	g500-S660	m650-U71/M4	2	23
8.3	44.2	24.9	49.0	206	49.0	2.2	9.094	18.069	g500-S130	m650-U71/M4	2	13
8.2	44.7	24.6	50.0	203	50.0	4.7	9.281	18.286	g500-S400	m650-U71/M4	2	18
8.0	45.9	24.0	51.0	198	51.0	3.6	9.168	18.776	g500-S220	m650-U71/M4	2	15
7.4	49.6	22.2	55.0	183	55.0	3.4	9.086	20.300	g500-S220	m650-U71/M4	2	15
7.4	49.8	22.1	55.0	183	55.0	2.0	8.925	20.381	g500-S130	m650-U71/M4	2	13
7.3	50.5	21.8	56.0	180	56.0	4.7	9.242	20.659	g500-S400	m650-U71/M4	2	18
6.7	54.8	20.1	61.0	166	61.0	4.2	9.146	22.400	g500-S400	m650-U71/M4	2	18
6.5	56.2	19.6	62.0	162	62.0	3.0	9.070	23.000	g500-S220	m650-U71/M4	2	15
6.5	56.4	19.5	63.0	161	63.0	1.7	8.982	23.048	g500-S130	m650-U71/M4	2	13
6.0	61.0	18.0	68.0	149	68.0	1.6	8.881	24.967	g500-S130	m650-U71/M4	2	13
6.0	61.3	18.0	68.0	149	68.0	4.2	9.397	25.056	g500-S660	m650-U71/M4	2	23
5.9	61.9	17.8	69.0	147	69.0	4.2	9.120	25.308	g500-S400	m650-U71/M4	2	18
5.7	64.6	17.0	72.0	141	72.0	2.6	8.959	26.422	g500-S220	m650-U71/M4	2	15
5.3	69.0	15.9	77.0	132	77.0	1.4	8.919	28.233	g500-S130	m650-U71/M4	2	13
5.3	69.8	15.8	78.0	130	78.0	4.2	9.359	28.548	g500-S660	m650-U71/M4	2	23
5.1	71.3	15.4	79.0	128	79.0	3.8	8.994	29.156	g500-S400	m650-U71/M4	2	18
5.0	73.2	15.0	81.0	124	81.0	2.3	8.949	29.937	g500-S220	m650-U71/M4	2	15
4.8	76.2	14.4	85.0	119	85.0	3.9	9.217	31.167	g500-S660	m650-U71/M4	2	23
4.8	76.7	14.3	85.0	119	85.0	1.4	8.837	31.387	g500-S130	m650-U71/M4	2	13
4.6	80.4	13.7	89.0	113	89.0	2.3	8.901	32.867	g500-S220	m650-U71/M4	2	15
4.6	80.5	13.7	89.0	113	89.0	4.2	8.978	32.940	g500-S400	m650-U71/M4	2	18
4.2	86.8	12.7	96.0	105	96.0	1.3	8.861	35.493	g500-S130	m650-U71/M4	2	13
4.2	86.8	12.7	96.0	105	96.0	3.9	9.192	35.511	g500-S660	m650-U71/M4	2	23
4.1	88.7	12.4	99.0	103	99.0	3.6	8.924	36.267	g500-S400	m650-U71/M4	2	18
4.0	91.0	12.1	101	99.9	101	2.0	8.895	37.238	g500-S220	m650-U71/M4	2	15
3.7	98.6	11.2	110	92.2	110	3.6	9.040	40.333	g500-S660	m650-U71/M4	2	23
3.7	98.8	11.1	110	92.0	110	1.1	8.809	40.422	g500-S130	m650-U71/M4	2	13
3.7	100	11.0	111	90.8	111	3.3	8.914	40.974	g500-S400	m650-U71/M4	2	18



Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
3.7	100	11.0	112	90.6	112	3.9	9.537	41.067	g500-S950	m650-U71/M4	2	43
3.5	104	10.6	116	87.5	116	1.8	8.845	42.533	g500-S220	m650-U71/M4	2	15
3.3	112	9.8	124	81.4	124	1.0	8.824	45.711	g500-S130	m650-U71/M4	2	13
3.3	112	9.8	125	80.9	125	3.6	9.025	45.956	g500-S660	m650-U71/M4	2	23
3.3	112	9.8	125	80.9	125	3.9	9.511	45.956	g500-S950	m650-U71/M4	2	43
3.2	115	9.6	128	79.3	128	2.3	8.859	46.933	g500-S400	m650-U71/M4	2	18
3.1	118	9.3	131	77.2	131	1.6	8.841	48.190	g500-S220	m650-U71/M4	2	15
3.1	120	9.2	133	76.0	133	3.0	8.961	48.950	g500-S660	m650-U71/M4	2	23
3.0	120	9.0	133	74.6	133	3.9	9.140	49.867	g500-S660	m650-U71/M4	3	24
3.0	122	9.0	135	74.6	135	3.4	9.328	49.840	g500-S950	m650-U71/M4	2	43
2.9	126	8.7	140	72.1	140	1.5	8.819	51.620	g500-S220	m650-U71/M4	2	15
2.9	127	8.6	141	70.7	141	1.3	8.884	52.587	g500-S220	m650-U71/M4	3	15
2.8	130	8.5	144	70.2	144	2.3	8.853	53.026	g500-S400	m650-U71/M4	2	18
2.7	136	8.1	152	66.7	152	3.0	8.951	55.773	g500-S660	m650-U71/M4	2	23
2.7	136	8.1	152	66.7	152	3.4	9.310	55.773	g500-S950	m650-U71/M4	2	43
2.6	137	7.9	152	65.5	152	3.6	9.131	56.818	g500-S660	m650-U71/M4	3	24
2.6	139	7.9	155	65.3	155	1.6	8.829	56.960	g500-S400	m650-U71/M4	2	18
2.6	140	7.8	155	64.1	155	2.2	8.892	58.027	g500-S400	m650-U71/M4	3	18
2.6	143	7.7	159	63.6	159	1.3	8.817	58.486	g500-S220	m650-U71/M4	2	15
2.5	144	7.6	159	62.4	159	1.2	8.881	59.581	g500-S220	m650-U71/M4	3	15
2.4	154	7.1	171	59.0	171	2.7	9.122	63.000	g500-S950	m650-U71/M4	2	43
2.4	154	7.1	171	58.3	171	3.2	9.020	63.817	g500-S660	m650-U71/M4	3	24
2.3	154	7.0	171	58.1	171	4.7	9.494	64.022	g500-S950	m650-U71/M4	3	44
2.3	157	7.0	175	57.8	175	1.6	8.824	64.354	g500-S400	m650-U71/M4	2	18
2.3	158	6.9	175	56.7	175	1.9	8.889	65.559	g500-S400	m650-U71/M4	3	18
2.2	162	6.7	180	55.3	180	1.0	8.842	67.298	g500-S220	m650-U71/M4	3	15
2.1	168	6.4	187	53.3	187	3.0	8.985	69.813	g500-S660	m650-U71/M4	3	24
2.1	169	6.4	187	53.1	187	4.7	9.393	70.037	g500-S950	m650-U71/M4	3	44
2.1	172	6.4	192	52.8	192	2.7	9.111	70.500	g500-S950	m650-U71/M4	2	43
2.1	173	6.3	192	51.9	192	4.6	9.484	71.644	g500-S950	m650-U71/M4	3	44
2.1	175	6.2	195	51.2	195	3.2	9.014	72.713	g500-S660	m650-U71/M4	3	24
2.0	179	6.1	199	50.1	199	1.9	8.848	74.260	g500-S400	m650-U71/M4	3	18
2.0	184	5.9	204	48.8	204	1.0	8.841	76.249	g500-S220	m650-U71/M4	3	15
1.9	189	5.7	210	47.5	210	4.2	9.384	78.375	g500-S950	m650-U71/M4	3	44
1.9	192	5.7	213	46.8	213	2.9	8.980	79.545	g500-S660	m650-U71/M4	3	24
1.8	202	5.4	225	44.3	225	1.7	8.845	83.900	g500-S400	m650-U71/M4	3	18
1.7	215	5.1	238	41.8	238	2.6	8.915	89.048	g500-S660	m650-U71/M4	3	24
1.7	215	5.0	239	41.6	239	3.7	9.205	89.333	g500-S950	m650-U71/M4	3	44
1.6	229	4.7	254	39.2	254	1.5	8.816	94.984	g500-S400	m650-U71/M4	3	18
1.5	241	4.5	268	37.2	268	3.3	9.199	99.968	g500-S950	m650-U71/M4	3	44
1.5	244	4.4	271	36.7	271	2.3	8.912	101.460	g500-S660	m650-U71/M4	3	24
1.4	258	4.2	287	34.7	287	1.3	8.814	107.314	g500-S400	m650-U71/M4	3	18
1.4	263	4.1	292	34.1	292	2.1	8.875	109.083	g500-S660	m650-U71/M4	3	24
1.4	264	4.1	293	34.0	293	3.0	9.095	109.433	g500-S950	m650-U71/M4	3	44
1.2	295	3.7	328	30.4	328	2.7	9.091	122.461	g500-S950	m650-U71/M4	3	44
1.2	297	3.6	330	30.2	330	1.1	8.796	123.307	g500-S400	m650-U71/M4	3	18
1.2	299	3.6	333	29.9	333	1.9	8.873	124.289	g500-S660	m650-U71/M4	3	24
1.1	330	3.3	367	27.1	367	1.7	8.833	137.133	g500-S660	m650-U71/M4	3	24
1.1	336	3.2	373	26.7	373	1.0	8.795	139.313	g500-S400	m650-U71/M4	3	18
1.1	343	3.2	381	26.1	381	2.3	8.964	142.437	g500-S950	m650-U71/M4	3	44
1.0	376	2.9	418	23.8	418	1.5	8.832	156.249	g500-S660	m650-U71/M4	3	24
1.0	377	2.9	419	23.8	419	4.6	9.351	156.407	g500-S2100	m650-U71/M4	3	76



Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
0.9	384	2.8	427	23.3	427	2.1	8.962	159.394	g500-S950	m650-U71/M4	3	44
0.9	419	2.6	465	21.4	465	4.1	9.345	173.820	g500-S2100	m650-U71/M4	3	76
0.8	425	2.5	473	21.1	473	1.3	8.806	176.611	g500-S660	m650-U71/M4	3	24
0.8	427	2.5	474	21.0	474	1.9	8.904	177.178	g500-S950	m650-U71/M4	3	44
0.8	444	2.4	493	20.2	493	4.7	9.452	184.146	g500-S3100	m650-U71/M4	3	115
0.8	469	2.3	521	19.1	521	3.7	9.187	194.556	g500-S2100	m650-U71/M4	3	76
0.8	478	2.3	531	18.8	531	1.7	8.903	198.270	g500-S950	m650-U71/M4	3	44
0.7	485	2.2	538	18.5	538	1.1	8.806	201.230	g500-S660	m650-U71/M4	3	24
0.7	502	2.2	557	17.9	557	4.7	9.437	208.240	g500-S3100	m650-U71/M4	3	115
0.7	521	2.1	579	17.2	579	3.3	9.183	216.215	g500-S2100	m650-U71/M4	3	76
0.7	552	2.0	613	16.2	613	3.9	9.218	229.059	g500-S3100	m650-U71/M4	3	115
0.7	552	2.0	614	16.2	614	1.4	8.847	229.289	g500-S950	m650-U71/M4	3	44
0.6	574	1.9	638	15.6	638	3.9	9.623	238.252	g500-S4500	m650-U71/M4	3	190
0.6	606	1.8	674	14.8	674	2.8	9.022	251.778	g500-S2100	m650-U71/M4	3	76
0.6	618	1.8	687	14.5	687	1.3	8.846	256.585	g500-S950	m650-U71/M4	3	44
0.6	624	1.7	693	14.4	693	3.9	9.208	259.030	g500-S3100	m650-U71/M4	3	115
0.6	641	1.7	712	14.0	712	3.9	9.611	265.956	g500-S4500	m650-U71/M4	3	190
0.5	670	1.6	745	13.4	745	1.2	8.821	278.273	g500-S950	m650-U71/M4	3	44
0.5	674	1.6	749	13.3	749	2.6	9.020	279.807	g500-S2100	m650-U71/M4	3	76
0.5	696	1.6	774	12.9	774	3.4	9.386	289.151	g500-S4500	m650-U71/M4	3	190
0.5	714	1.5	793	12.5	793	3.6	9.041	296.430	g500-S3100	m650-U71/M4	3	115
0.5	736	1.5	818	12.2	818	2.3	8.949	305.567	g500-S2100	m650-U71/M4	3	76
0.5	750	1.4	833	11.9	833	1.1	8.820	311.401	g500-S950	m650-U71/M4	3	44
0.5	752	1.4	835	11.7	835	3.5	9.212	316.910	g500-S3100	m650-U71/M4	4	118
0.5	757	1.4	841	11.7	841	1.1	8.973	319.059	g500-S950	m650-U71/M4	4	47
0.5	760	1.4	844	11.6	844	2.3	9.040	320.263	g500-S2100	m650-U71/M4	4	79
0.5	771	1.4	856	11.5	856	4.7	9.378	324.889	g500-S4500	m650-U71/M4	4	193
0.5	777	1.4	864	11.5	864	3.4	9.378	322.773	g500-S4500	m650-U71/M4	3	190
0.4	807	1.3	897	11.1	897	3.2	9.035	335.215	g500-S3100	m650-U71/M4	3	115
0.4	818	1.3	909	11.0	909	2.1	8.947	339.584	g500-S2100	m650-U71/M4	3	76
0.4	831	1.3	923	10.6	923	2.1	9.025	350.353	g500-S2100	m650-U71/M4	4	79
0.4	847	1.3	941	10.4	941	0.9	8.972	357.042	g500-S950	m650-U71/M4	4	47
0.4	850	1.3	945	10.4	945	3.1	9.207	358.375	g500-S3100	m650-U71/M4	4	118
0.4	860	1.2	956	10.3	956	4.4	9.372	362.667	g500-S4500	m650-U71/M4	4	193
0.4	866	1.3	963	10.3	963	3.0	8.961	359.758	g500-S3100	m650-U71/M4	3	115
0.4	880	1.2	978	10.2	978	2.7	9.158	365.500	g500-S4500	m650-U71/M4	3	190
0.4	924	1.2	1026	9.6	1026	1.9	9.024	389.356	g500-S2100	m650-U71/M4	4	79
0.4	930	1.2	1034	9.6	1034	1.7	8.879	386.250	g500-S2100	m650-U71/M4	3	76
0.4	944	1.1	1049	9.3	1049	4.0	9.294	397.989	g500-S4500	m650-U71/M4	4	193
0.4	959	1.1	1065	9.2	1065	2.7	9.165	404.222	g500-S3100	m650-U71/M4	4	118
0.4	980	1.1	1089	9.1	1089	2.7	8.957	406.829	g500-S3100	m650-U71/M4	3	115
0.4	983	1.1	1092	9.1	1092	2.7	9.153	408.000	g500-S4500	m650-U71/M4	3	190
0.3	1034	1.0	1149	8.7	1149	1.7	8.877	429.250	g500-S2100	m650-U71/M4	3	76
0.3	1054	1.0	1171	8.4	1171	3.6	9.290	444.267	g500-S4500	m650-U71/M4	4	193
0.3	1060	1.0	1178	8.3	1178	1.6	9.000	446.878	g500-S2100	m650-U71/M4	4	79
0.3	1084	1.0	1205	8.1	1205	2.4	9.161	457.111	g500-S3100	m650-U71/M4	4	118
0.3	1175	0.9	1305	7.5	1305	2.2	9.137	495.172	g500-S3100	m650-U71/M4	4	118
0.3	1178	0.9	1309	7.5	1309	1.5	8.999	496.628	g500-S2100	m650-U71/M4	4	79
0.3	1229	0.9	1365	7.2	1365	3.1	9.212	518.017	g500-S4500	m650-U71/M4	4	193
0.3	1299	0.8	1443	6.8	1443	1.3	8.986	547.426	g500-S2100	m650-U71/M4	4	79
0.3	1328	0.8	1476	6.6	1476	2.0	9.135	559.961	g500-S3100	m650-U71/M4	4	118
0.3	1372	0.8	1524	6.4	1524	2.8	9.209	578.252	g500-S4500	m650-U71/M4	4	193



Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz							z	m
n_{22}	M_{22}	n_{21}	M_2	n_2	M_2	c	J	i				
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
0.2	1443	0.7	1604	6.1	1604	1.2	8.985	608.369	g500-S2100	m650-U71/M4	4	79
0.2	1506	0.7	1673	5.9	1673	2.5	9.169	634.887	g500-S4500	m650-U71/M4	4	193
0.2	1529	0.7	1699	5.8	1699	1.7	8.989	644.510	g500-S3100	m650-U71/M4	4	118
0.2	1681	0.6	1868	5.2	1868	2.2	9.168	708.711	g500-S4500	m650-U71/M4	4	193
0.2	1690	0.6	1878	5.2	1878	1.0	8.971	712.523	g500-S2100	m650-U71/M4	4	79
0.2	1729	0.6	1921	5.1	1921	1.5	8.988	728.838	g500-S3100	m650-U71/M4	4	118
0.2	1878	0.6	2087	4.7	2087	0.9	8.971	791.846	g500-S2100	m650-U71/M4	4	79
0.2	1902	0.6	2113	4.6	2113	1.4	8.921	801.707	g500-S3100	m650-U71/M4	4	118
0.2	1960	0.5	2178	4.5	2178	1.9	9.008	826.361	g500-S4500	m650-U71/M4	4	193
0.2	2151	0.5	2390	4.1	2390	1.2	8.920	906.604	g500-S3100	m650-U71/M4	4	118
0.2	2188	0.5	2431	4.0	2431	1.7	9.007	922.449	g500-S4500	m650-U71/M4	4	193
0.1	2438	0.4	2709	3.6	2709	1.6	8.933	1027.912	g500-S4500	m650-U71/M4	4	193
0.1	2475	0.4	2750	3.6	2750	1.1	8.910	1043.492	g500-S3100	m650-U71/M4	4	118
0.1	2722	0.4	3024	3.2	3024	1.4	8.932	1147.437	g500-S4500	m650-U71/M4	4	193
0.1	2799	0.4	3110	3.2	3110	0.9	8.910	1180.024	g500-S3100	m650-U71/M4	4	118
0.1	2874	0.4	3193	3.1	3193	1.3	8.873	1211.575	g500-S4500	m650-U71/M4	4	193
0.1	3203	0.3	3558	2.8	3558	1.2	8.918	1350.094	g500-S4500	m650-U71/M4	4	193
0.1	3575	0.3	3972	2.5	3972	1.1	8.917	1507.081	g500-S4500	m650-U71/M4	4	193
0.1	4145	0.3	4605	2.1	4605	0.9	8.855	1747.180	g500-S4500	m650-U71/M4	4	193



124 Hz: 1.5 kW

Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
44.9	11.4	135	13.0	1114	13.0	3.6	16.260	3.339	g500-S400	m650-U71/L4	2	19
41.0	12.5	123	14.0	1016	14.0	3.2	12.663	3.661	g500-S130	m650-U71/L4	2	14
39.1	13.1	117	15.0	969	15.0	3.6	13.696	3.840	g500-S220	m650-U71/L4	2	16
29.9	17.1	89.6	19.0	741	19.0	3.0	11.987	5.021	g500-S130	m650-U71/L4	2	14
25.6	20.0	76.8	22.0	635	22.0	3.2	12.961	5.860	g500-S400	m650-U71/L4	2	19
23.4	21.8	70.2	24.0	580	24.0	3.2	12.676	6.411	g500-S400	m650-U71/L4	2	19
23.3	21.9	70.0	24.0	579	24.0	2.6	11.673	6.425	g500-S130	m650-U71/L4	2	14
22.2	23.0	66.5	26.0	550	26.0	3.6	12.741	6.767	g500-S220	m650-U71/L4	2	16
21.3	23.9	64.0	27.0	529	27.0	2.6	11.588	7.029	g500-S130	m650-U71/L4	2	14
20.1	25.4	60.3	28.0	498	28.0	3.6	13.279	7.467	g500-S400	m650-U71/L4	2	19
19.6	26.1	58.7	29.0	485	29.0	3.6	12.599	7.667	g500-S220	m650-U71/L4	2	16
18.0	28.3	54.1	31.0	447	31.0	2.7	11.785	8.322	g500-S130	m650-U71/L4	2	14
17.8	28.7	53.3	32.0	441	32.0	3.6	13.045	8.436	g500-S400	m650-U71/L4	2	19
15.9	32.0	47.8	36.0	395	36.0	2.6	12.130	9.411	g500-S130	m650-U71/L4	2	14
13.1	38.9	39.4	43.0	326	43.0	2.2	11.521	11.413	g500-S130	m650-U71/L4	2	14
12.6	40.4	37.9	45.0	313	45.0	3.2	11.819	11.876	g500-S220	m650-U71/L4	2	16
11.6	44.0	34.9	49.0	288	49.0	2.0	11.704	12.907	g500-S130	m650-U71/L4	2	14
11.5	44.2	34.6	49.0	286	49.0	3.2	11.721	12.992	g500-S220	m650-U71/L4	2	16
11.4	44.6	34.3	50.0	284	50.0	3.2	11.993	13.105	g500-S400	m650-U71/L4	2	19
11.1	45.8	33.4	51.0	277	51.0	3.2	11.773	13.456	g500-S220	m650-U71/L4	2	16
10.5	48.8	31.4	54.0	260	54.0	3.2	11.867	14.336	g500-S400	m650-U71/L4	2	19
10.3	49.7	30.8	55.0	255	55.0	1.7	11.388	14.606	g500-S130	m650-U71/L4	2	14
10.2	50.1	30.6	56.0	253	56.0	2.9	11.683	14.720	g500-S220	m650-U71/L4	2	16
10.1	50.4	30.4	56.0	251	56.0	3.2	11.917	14.806	g500-S400	m650-U71/L4	2	19
9.5	53.5	28.6	59.0	237	59.0	3.2	12.613	15.714	g500-S660	m650-U71/L4	2	25
9.4	54.4	28.2	60.0	233	60.0	1.6	11.350	15.979	g500-S130	m650-U71/L4	2	14
9.3	55.2	27.8	61.0	230	61.0	3.2	11.804	16.197	g500-S400	m650-U71/L4	2	19
9.1	56.4	27.2	63.0	225	63.0	2.6	11.542	16.571	g500-S220	m650-U71/L4	2	16
8.4	61.0	25.1	68.0	208	68.0	3.2	12.515	17.905	g500-S660	m650-U71/L4	2	25
8.3	61.5	24.9	68.0	206	68.0	1.6	11.444	18.069	g500-S130	m650-U71/L4	2	14
8.2	62.3	24.6	69.0	203	69.0	3.4	11.631	18.286	g500-S400	m650-U71/L4	2	19
8.0	63.9	24.0	71.0	198	71.0	2.6	11.518	18.776	g500-S220	m650-U71/L4	2	16
7.4	69.1	22.2	77.0	183	77.0	2.4	11.436	20.300	g500-S220	m650-U71/L4	2	16
7.4	69.4	22.1	77.0	183	77.0	1.4	11.275	20.381	g500-S130	m650-U71/L4	2	14
7.3	70.4	21.8	78.0	180	78.0	3.4	11.592	20.659	g500-S400	m650-U71/L4	2	19
6.7	76.3	20.1	85.0	166	85.0	3.0	11.496	22.400	g500-S400	m650-U71/L4	2	19
6.5	78.3	19.6	87.0	162	87.0	2.1	11.420	23.000	g500-S220	m650-U71/L4	2	16
6.5	78.5	19.5	87.0	161	87.0	1.3	11.332	23.048	g500-S130	m650-U71/L4	2	14
6.0	85.0	18.0	94.0	149	94.0	1.2	11.231	24.967	g500-S130	m650-U71/L4	2	14
6.0	85.3	18.0	95.0	149	95.0	3.0	11.747	25.056	g500-S660	m650-U71/L4	2	25
5.9	86.2	17.8	96.0	147	96.0	3.0	11.470	25.308	g500-S400	m650-U71/L4	2	19
5.7	90.0	17.0	100	141	100	1.9	11.309	26.422	g500-S220	m650-U71/L4	2	16
5.3	96.1	15.9	107	132	107	1.0	11.269	28.233	g500-S130	m650-U71/L4	2	14
5.3	97.2	15.8	108	130	108	3.0	11.709	28.548	g500-S660	m650-U71/L4	2	25
5.1	99.3	15.4	110	128	110	2.7	11.344	29.156	g500-S400	m650-U71/L4	2	19
5.0	102	15.0	113	124	113	1.6	11.299	29.937	g500-S220	m650-U71/L4	2	16
4.8	106	14.4	118	119	118	2.8	11.567	31.167	g500-S660	m650-U71/L4	2	25
4.8	107	14.3	119	119	119	1.0	11.187	31.387	g500-S130	m650-U71/L4	2	14
4.6	112	13.7	124	113	124	1.7	11.251	32.867	g500-S220	m650-U71/L4	2	16
4.6	112	13.7	125	113	125	3.0	11.328	32.940	g500-S400	m650-U71/L4	2	19
4.2	121	12.7	134	105	134	0.9	11.211	35.493	g500-S130	m650-U71/L4	2	14



Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
4.2	121	12.7	134	105	134	2.8	11.542	35.511	g500-S660	m650-U71/L4	2	25
4.1	124	12.4	137	103	137	2.6	11.274	36.267	g500-S400	m650-U71/L4	2	19
4.0	127	12.1	141	99.9	141	1.5	11.245	37.238	g500-S220	m650-U71/L4	2	16
3.7	137	11.2	153	92.2	153	2.6	11.390	40.333	g500-S660	m650-U71/L4	2	25
3.7	140	11.0	155	90.8	155	2.4	11.264	40.974	g500-S400	m650-U71/L4	2	19
3.7	140	11.0	155	90.6	155	2.8	11.887	41.067	g500-S950	m650-U71/L4	2	44
3.5	145	10.6	161	87.5	161	1.3	11.195	42.533	g500-S220	m650-U71/L4	2	16
3.3	157	9.8	174	80.9	174	2.6	11.375	45.956	g500-S660	m650-U71/L4	2	25
3.3	157	9.8	174	80.9	174	2.8	11.861	45.956	g500-S950	m650-U71/L4	2	44
3.2	160	9.6	178	79.3	178	1.7	11.209	46.933	g500-S400	m650-U71/L4	2	19
3.1	164	9.3	182	77.2	182	1.1	11.191	48.190	g500-S220	m650-U71/L4	2	16
3.1	167	9.2	185	76.0	185	2.1	11.311	48.950	g500-S660	m650-U71/L4	2	25
3.0	167	9.0	186	74.6	186	2.8	11.490	49.867	g500-S660	m650-U71/L4	3	25
3.0	170	9.0	189	74.6	189	2.5	11.678	49.840	g500-S950	m650-U71/L4	2	44
2.9	176	8.7	195	72.1	195	1.1	11.169	51.620	g500-S220	m650-U71/L4	2	16
2.9	176	8.6	196	70.7	196	0.9	11.234	52.587	g500-S220	m650-U71/L4	3	16
2.8	181	8.5	201	70.2	201	1.6	11.203	53.026	g500-S400	m650-U71/L4	2	19
2.7	190	8.1	211	66.7	211	2.1	11.301	55.773	g500-S660	m650-U71/L4	2	25
2.7	190	8.1	211	66.7	211	2.5	11.660	55.773	g500-S950	m650-U71/L4	2	44
2.6	191	7.9	212	65.5	212	2.6	11.481	56.818	g500-S660	m650-U71/L4	3	25
2.6	194	7.9	216	65.3	216	1.2	11.179	56.960	g500-S400	m650-U71/L4	2	19
2.6	195	7.8	216	64.1	216	1.6	11.242	58.027	g500-S400	m650-U71/L4	3	20
2.6	199	7.7	221	63.6	221	0.9	11.167	58.486	g500-S220	m650-U71/L4	2	16
2.4	215	7.1	238	59.0	238	2.0	11.472	63.000	g500-S950	m650-U71/L4	2	44
2.4	214	7.1	238	58.3	238	2.3	11.370	63.817	g500-S660	m650-U71/L4	3	25
2.3	215	7.0	239	58.1	239	3.3	11.844	64.022	g500-S950	m650-U71/L4	3	45
2.3	219	7.0	244	57.8	244	1.2	11.174	64.354	g500-S400	m650-U71/L4	2	19
2.3	220	6.9	244	56.7	244	1.4	11.239	65.559	g500-S400	m650-U71/L4	3	20
2.1	234	6.4	260	53.3	260	2.1	11.335	69.813	g500-S660	m650-U71/L4	3	25
2.1	235	6.4	261	53.1	261	3.4	11.743	70.037	g500-S950	m650-U71/L4	3	45
2.1	240	6.4	267	52.8	267	2.0	11.461	70.500	g500-S950	m650-U71/L4	2	44
2.1	240	6.3	267	51.9	267	3.3	11.834	71.644	g500-S950	m650-U71/L4	3	45
2.1	244	6.2	271	51.2	271	2.3	11.364	72.713	g500-S660	m650-U71/L4	3	25
2.0	249	6.1	277	50.1	277	1.4	11.198	74.260	g500-S400	m650-U71/L4	3	20
1.9	263	5.7	292	47.5	292	3.0	11.734	78.375	g500-S950	m650-U71/L4	3	45
1.9	267	5.7	296	46.8	296	2.1	11.330	79.545	g500-S660	m650-U71/L4	3	25
1.8	281	5.4	313	44.3	313	1.2	11.195	83.900	g500-S400	m650-U71/L4	3	20
1.7	299	5.1	332	41.8	332	1.9	11.265	89.048	g500-S660	m650-U71/L4	3	25
1.7	300	5.0	333	41.6	333	2.7	11.555	89.333	g500-S950	m650-U71/L4	3	45
1.6	319	4.7	354	39.2	354	1.1	11.166	94.984	g500-S400	m650-U71/L4	3	20
1.5	329	4.6	366	37.9	366	4.0	12.496	98.095	g500-S2100	m650-U71/L4	3	77
1.5	335	4.5	373	37.2	373	2.4	11.549	99.968	g500-S950	m650-U71/L4	3	45
1.5	340	4.4	378	36.7	378	1.6	11.262	101.460	g500-S660	m650-U71/L4	3	25
1.4	360	4.2	400	34.7	400	0.9	11.164	107.314	g500-S400	m650-U71/L4	3	20
1.4	366	4.1	406	34.1	406	4.0	12.479	109.016	g500-S2100	m650-U71/L4	3	77
1.4	366	4.1	407	34.1	407	1.5	11.225	109.083	g500-S660	m650-U71/L4	3	25
1.4	367	4.1	408	34.0	408	2.2	11.445	109.433	g500-S950	m650-U71/L4	3	45
1.3	387	3.9	430	32.2	430	4.0	12.619	115.492	g500-S3100	m650-U71/L4	3	117
1.2	411	3.7	456	30.4	456	1.9	11.441	122.461	g500-S950	m650-U71/L4	3	45
1.2	417	3.6	463	29.9	463	1.3	11.223	124.289	g500-S660	m650-U71/L4	3	25
1.1	438	3.4	487	28.5	487	4.0	12.580	130.603	g500-S3100	m650-U71/L4	3	117
1.1	460	3.3	511	27.1	511	1.2	11.183	137.133	g500-S660	m650-U71/L4	3	25



Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
1.1	478	3.2	531	26.1	531	1.7	11.314	142.437	g500-S950	m650-U71/L4	3	45
1.0	524	2.9	582	23.8	582	1.1	11.182	156.249	g500-S660	m650-U71/L4	3	25
1.0	525	2.9	583	23.8	583	3.3	11.701	156.407	g500-S2100	m650-U71/L4	3	77
0.9	535	2.8	594	23.3	594	1.5	11.312	159.394	g500-S950	m650-U71/L4	3	45
0.9	583	2.6	648	21.4	648	3.0	11.695	173.820	g500-S2100	m650-U71/L4	3	77
0.8	592	2.5	658	21.1	658	0.9	11.156	176.611	g500-S660	m650-U71/L4	3	25
0.8	594	2.5	660	21.0	660	1.3	11.254	177.178	g500-S950	m650-U71/L4	3	45
0.8	618	2.4	686	20.2	686	3.3	11.802	184.146	g500-S3100	m650-U71/L4	3	117
0.8	653	2.3	725	19.1	725	2.6	11.537	194.556	g500-S2100	m650-U71/L4	3	77
0.8	665	2.3	739	18.8	739	1.2	11.253	198.270	g500-S950	m650-U71/L4	3	45
0.7	699	2.2	776	17.9	776	3.3	11.787	208.240	g500-S3100	m650-U71/L4	3	117
0.7	725	2.1	806	17.2	806	2.4	11.533	216.215	g500-S2100	m650-U71/L4	3	77
0.7	768	2.0	854	16.2	854	2.8	11.568	229.059	g500-S3100	m650-U71/L4	3	117
0.7	769	2.0	855	16.2	855	1.0	11.197	229.289	g500-S950	m650-U71/L4	3	45
0.6	799	1.9	888	15.6	888	2.8	11.973	238.252	g500-S4500	m650-U71/L4	3	192
0.6	845	1.8	938	14.8	938	2.0	11.372	251.778	g500-S2100	m650-U71/L4	3	77
0.6	861	1.8	956	14.5	956	0.9	11.196	256.585	g500-S950	m650-U71/L4	3	45
0.6	869	1.7	965	14.4	965	2.8	11.558	259.030	g500-S3100	m650-U71/L4	3	117
0.6	892	1.7	991	14.0	991	2.8	11.961	265.956	g500-S4500	m650-U71/L4	3	192
0.5	939	1.6	1043	13.3	1043	1.8	11.370	279.807	g500-S2100	m650-U71/L4	3	77
0.5	970	1.6	1078	12.9	1078	2.5	11.736	289.151	g500-S4500	m650-U71/L4	3	192
0.5	994	1.5	1105	12.5	1105	2.6	11.391	296.430	g500-S3100	m650-U71/L4	3	117
0.5	1025	1.5	1139	12.2	1139	1.7	11.299	305.567	g500-S2100	m650-U71/L4	3	77
0.5	1047	1.4	1163	11.7	1163	2.5	11.562	316.910	g500-S3100	m650-U71/L4	4	120
0.5	1058	1.4	1176	11.6	1176	1.6	11.390	320.263	g500-S2100	m650-U71/L4	4	80
0.5	1074	1.4	1193	11.5	1193	3.3	11.728	324.889	g500-S4500	m650-U71/L4	4	195
0.5	1083	1.4	1203	11.5	1203	2.5	11.728	322.773	g500-S4500	m650-U71/L4	3	192
0.4	1124	1.3	1249	11.1	1249	2.3	11.385	335.215	g500-S3100	m650-U71/L4	3	117
0.4	1139	1.3	1266	11.0	1266	1.5	11.297	339.584	g500-S2100	m650-U71/L4	3	77
0.4	1158	1.3	1286	10.6	1286	1.5	11.375	350.353	g500-S2100	m650-U71/L4	4	80
0.4	1184	1.3	1316	10.4	1316	2.2	11.557	358.375	g500-S3100	m650-U71/L4	4	120
0.4	1198	1.2	1331	10.3	1331	3.2	11.722	362.667	g500-S4500	m650-U71/L4	4	195
0.4	1207	1.3	1341	10.3	1341	2.1	11.311	359.758	g500-S3100	m650-U71/L4	3	117
0.4	1226	1.2	1362	10.2	1362	2.0	11.508	365.500	g500-S4500	m650-U71/L4	3	192
0.4	1287	1.2	1429	9.6	1429	1.3	11.374	389.356	g500-S2100	m650-U71/L4	4	80
0.4	1296	1.2	1440	9.6	1440	1.2	11.229	386.250	g500-S2100	m650-U71/L4	3	77
0.4	1315	1.1	1461	9.3	1461	2.9	11.644	397.989	g500-S4500	m650-U71/L4	4	195
0.4	1336	1.1	1484	9.2	1484	1.9	11.515	404.222	g500-S3100	m650-U71/L4	4	120
0.4	1365	1.1	1516	9.1	1516	1.9	11.307	406.829	g500-S3100	m650-U71/L4	3	117
0.4	1369	1.1	1521	9.1	1521	2.0	11.503	408.000	g500-S4500	m650-U71/L4	3	192
0.3	1440	1.0	1600	8.7	1600	1.2	11.227	429.250	g500-S2100	m650-U71/L4	3	77
0.3	1468	1.0	1631	8.4	1631	2.6	11.640	444.267	g500-S4500	m650-U71/L4	4	195
0.3	1477	1.0	1641	8.3	1641	1.2	11.350	446.878	g500-S2100	m650-U71/L4	4	80
0.3	1510	1.0	1678	8.1	1678	1.7	11.511	457.111	g500-S3100	m650-U71/L4	4	120
0.3	1636	0.9	1818	7.5	1818	1.6	11.487	495.172	g500-S3100	m650-U71/L4	4	120
0.3	1641	0.9	1823	7.5	1823	1.1	11.349	496.628	g500-S2100	m650-U71/L4	4	80
0.3	1712	0.9	1902	7.2	1902	2.2	11.562	518.017	g500-S4500	m650-U71/L4	4	195
0.3	1809	0.8	2010	6.8	2010	1.0	11.336	547.426	g500-S2100	m650-U71/L4	4	80
0.3	1850	0.8	2056	6.6	2056	1.4	11.485	559.961	g500-S3100	m650-U71/L4	4	120
0.3	1911	0.8	2123	6.4	2123	2.0	11.559	578.252	g500-S4500	m650-U71/L4	4	195
0.2	2098	0.7	2331	5.9	2331	1.8	11.519	634.887	g500-S4500	m650-U71/L4	4	195
0.2	2130	0.7	2366	5.8	2366	1.2	11.339	644.510	g500-S3100	m650-U71/L4	4	120



Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n_{22}	M_{22}	n_{21}	M_2	n_2	M_2	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
0.2	2342	0.6	2602	5.2	2602	1.6	11.518	708.711	g500-S4500	m650-U71/L4	4	195
0.2	2408	0.6	2676	5.1	2676	1.1	11.338	728.838	g500-S3100	m650-U71/L4	4	120
0.2	2649	0.6	2943	4.6	2943	1.0	11.271	801.707	g500-S3100	m650-U71/L4	4	120
0.2	2730	0.5	3034	4.5	3034	1.4	11.358	826.361	g500-S4500	m650-U71/L4	4	195
0.2	3048	0.5	3387	4.0	3387	1.2	11.357	922.449	g500-S4500	m650-U71/L4	4	195
0.1	3396	0.4	3774	3.6	3774	1.1	11.283	1027.912	g500-S4500	m650-U71/L4	4	195
0.1	3791	0.4	4212	3.2	4212	1.0	11.282	1147.437	g500-S4500	m650-U71/L4	4	195
0.1	4003	0.4	4448	3.1	4448	0.9	11.223	1211.575	g500-S4500	m650-U71/L4	4	195



124 Hz: 2.2 kW

Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz							z	m
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i				
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
44.9	16.3	135	18.0	1114	18.0	3.2	26.260	3.339	g500-S400	m650-U80/M4	2	21
41.0	17.9	123	20.0	1016	20.0	2.3	22.663	3.661	g500-S130	m650-U80/M4	2	16
39.1	18.8	117	21.0	969	21.0	3.2	23.696	3.840	g500-S220	m650-U80/M4	2	18
29.9	24.6	89.6	27.0	741	27.0	2.1	21.987	5.021	g500-S130	m650-U80/M4	2	16
25.6	28.7	76.8	32.0	635	32.0	2.8	22.961	5.860	g500-S400	m650-U80/M4	2	21
23.4	31.3	70.2	35.0	580	35.0	2.8	22.676	6.411	g500-S400	m650-U80/M4	2	21
23.3	31.4	70.0	35.0	579	35.0	1.8	21.673	6.425	g500-S130	m650-U80/M4	2	16
22.2	33.1	66.5	37.0	550	37.0	3.2	22.741	6.767	g500-S220	m650-U80/M4	2	18
21.3	34.4	64.0	38.0	529	38.0	1.8	21.588	7.029	g500-S130	m650-U80/M4	2	16
20.1	36.5	60.3	41.0	498	41.0	3.2	23.279	7.467	g500-S400	m650-U80/M4	2	21
19.6	37.5	58.7	42.0	485	42.0	3.2	22.599	7.667	g500-S220	m650-U80/M4	2	18
18.0	40.7	54.1	45.0	447	45.0	1.9	21.785	8.322	g500-S130	m650-U80/M4	2	16
17.8	41.3	53.3	46.0	441	46.0	3.2	23.045	8.436	g500-S400	m650-U80/M4	2	21
15.9	46.0	47.8	51.0	395	51.0	1.8	22.130	9.411	g500-S130	m650-U80/M4	2	16
13.1	55.8	39.4	62.0	326	62.0	1.6	21.521	11.413	g500-S130	m650-U80/M4	2	16
12.6	58.1	37.9	65.0	313	65.0	2.5	21.819	11.876	g500-S220	m650-U80/M4	2	18
11.6	63.1	34.9	70.0	288	70.0	1.4	21.704	12.907	g500-S130	m650-U80/M4	2	16
11.5	63.5	34.6	71.0	286	71.0	2.3	21.721	12.992	g500-S220	m650-U80/M4	2	18
11.4	64.1	34.3	71.0	284	71.0	2.8	21.993	13.105	g500-S400	m650-U80/M4	2	21
11.1	65.8	33.4	73.0	277	73.0	2.2	21.773	13.456	g500-S220	m650-U80/M4	2	18
10.5	70.1	31.4	78.0	260	78.0	2.8	21.867	14.336	g500-S400	m650-U80/M4	2	21
10.3	71.4	30.8	79.0	255	79.0	1.2	21.388	14.606	g500-S130	m650-U80/M4	2	16
10.2	72.0	30.6	80.0	253	80.0	2.0	21.683	14.720	g500-S220	m650-U80/M4	2	18
10.1	72.4	30.4	80.0	251	80.0	2.8	21.917	14.806	g500-S400	m650-U80/M4	2	21
9.5	76.8	28.6	85.0	237	85.0	2.8	22.613	15.714	g500-S660	m650-U80/M4	2	27
9.4	78.1	28.2	87.0	233	87.0	1.1	21.350	15.979	g500-S130	m650-U80/M4	2	16
9.3	79.2	27.8	88.0	230	88.0	2.8	21.804	16.197	g500-S400	m650-U80/M4	2	21
9.1	81.0	27.2	90.0	225	90.0	1.8	21.542	16.571	g500-S220	m650-U80/M4	2	18
8.4	87.6	25.1	97.0	208	97.0	2.8	22.515	17.905	g500-S660	m650-U80/M4	2	27
8.3	88.4	24.9	98.0	206	98.0	1.1	21.444	18.069	g500-S130	m650-U80/M4	2	16
8.2	89.4	24.6	99.0	203	99.0	2.9	21.631	18.286	g500-S400	m650-U80/M4	2	21
8.0	91.8	24.0	102	198	102	1.8	21.518	18.776	g500-S220	m650-U80/M4	2	18
7.4	99.3	22.2	110	183	110	1.7	21.436	20.300	g500-S220	m650-U80/M4	2	18
7.4	99.7	22.1	111	183	111	1.0	21.275	20.381	g500-S130	m650-U80/M4	2	16
7.3	101	21.8	112	180	112	2.9	21.592	20.659	g500-S400	m650-U80/M4	2	21
6.7	110	20.1	122	166	122	2.6	21.496	22.400	g500-S400	m650-U80/M4	2	21
6.5	113	19.6	125	162	125	1.5	21.420	23.000	g500-S220	m650-U80/M4	2	18
6.0	123	18.0	136	149	136	2.6	21.747	25.056	g500-S660	m650-U80/M4	2	27
5.9	124	17.8	138	147	138	2.4	21.470	25.308	g500-S400	m650-U80/M4	2	21
5.7	129	17.0	144	141	144	1.3	21.309	26.422	g500-S220	m650-U80/M4	2	18
5.3	140	15.8	155	130	155	2.6	21.709	28.548	g500-S660	m650-U80/M4	2	27
5.1	143	15.4	158	128	158	2.1	21.344	29.156	g500-S400	m650-U80/M4	2	21
5.0	146	15.0	163	124	163	1.1	21.299	29.937	g500-S220	m650-U80/M4	2	18
4.8	152	14.4	169	119	169	2.5	21.567	31.167	g500-S660	m650-U80/M4	2	27
4.6	161	13.7	179	113	179	1.2	21.251	32.867	g500-S220	m650-U80/M4	2	18
4.6	161	13.7	179	113	179	2.1	21.328	32.940	g500-S400	m650-U80/M4	2	21
4.2	174	12.7	193	105	193	2.5	21.542	35.511	g500-S660	m650-U80/M4	2	27
4.1	177	12.4	197	103	197	1.9	21.274	36.267	g500-S400	m650-U80/M4	2	21
4.0	182	12.1	202	99.9	202	1.0	21.245	37.238	g500-S220	m650-U80/M4	2	18
3.7	197	11.2	219	92.2	219	2.2	21.390	40.333	g500-S660	m650-U80/M4	2	27
3.7	200	11.0	223	90.8	223	1.7	21.264	40.974	g500-S400	m650-U80/M4	2	21



Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz							z	m
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i				
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
3.7	201	11.0	223	90.6	223	2.5	21.887	41.067	g500-S950	m650-U80/M4	2	46
3.3	225	9.8	250	80.9	250	2.2	21.375	45.956	g500-S660	m650-U80/M4	2	27
3.3	225	9.8	250	80.9	250	2.5	21.861	45.956	g500-S950	m650-U80/M4	2	46
3.2	230	9.6	255	79.3	255	1.2	21.209	46.933	g500-S400	m650-U80/M4	2	21
3.1	239	9.2	266	76.0	266	1.6	21.311	48.950	g500-S660	m650-U80/M4	2	27
3.0	240	9.0	267	74.6	267	2.0	21.490	49.867	g500-S660	m650-U80/M4	3	27
3.0	244	9.0	271	74.6	271	2.2	21.678	49.840	g500-S950	m650-U80/M4	2	46
2.8	259	8.5	288	70.2	288	1.1	21.203	53.026	g500-S400	m650-U80/M4	2	21
2.7	273	8.1	303	66.7	303	1.6	21.301	55.773	g500-S660	m650-U80/M4	2	27
2.7	273	8.1	303	66.7	303	2.2	21.660	55.773	g500-S950	m650-U80/M4	2	46
2.6	274	7.9	304	65.5	304	1.8	21.481	56.818	g500-S660	m650-U80/M4	3	27
2.6	280	7.8	311	64.1	311	1.1	21.242	58.027	g500-S400	m650-U80/M4	3	22
2.4	308	7.1	342	59.0	342	1.7	21.472	63.000	g500-S950	m650-U80/M4	2	46
2.4	307	7.1	342	58.3	342	1.6	21.370	63.817	g500-S660	m650-U80/M4	3	27
2.3	308	7.0	343	58.1	343	2.3	21.844	64.022	g500-S950	m650-U80/M4	3	47
2.3	316	6.9	351	56.7	351	1.0	21.239	65.559	g500-S400	m650-U80/M4	3	22
2.1	336	6.4	374	53.3	374	1.5	21.335	69.813	g500-S660	m650-U80/M4	3	27
2.1	337	6.4	375	53.1	375	2.4	21.743	70.037	g500-S950	m650-U80/M4	3	47
2.1	345	6.4	383	52.8	383	1.7	21.461	70.500	g500-S950	m650-U80/M4	2	46
2.1	345	6.3	383	51.9	383	2.3	21.834	71.644	g500-S950	m650-U80/M4	3	47
2.1	350	6.2	389	51.2	389	1.6	21.364	72.713	g500-S660	m650-U80/M4	3	27
2.0	358	6.1	397	50.1	397	0.9	21.198	74.260	g500-S400	m650-U80/M4	3	22
1.9	378	5.7	419	47.5	419	2.1	21.734	78.375	g500-S950	m650-U80/M4	3	47
1.9	383	5.7	426	46.8	426	1.4	21.330	79.545	g500-S660	m650-U80/M4	3	27
1.7	429	5.1	477	41.8	477	1.3	21.265	89.048	g500-S660	m650-U80/M4	3	27
1.7	430	5.0	478	41.6	478	1.9	21.555	89.333	g500-S950	m650-U80/M4	3	47
1.5	473	4.6	525	37.9	525	3.5	22.496	98.095	g500-S2100	m650-U80/M4	3	79
1.5	482	4.5	535	37.2	535	1.7	21.549	99.968	g500-S950	m650-U80/M4	3	47
1.5	489	4.4	543	36.7	543	1.1	21.262	101.460	g500-S660	m650-U80/M4	3	27
1.4	525	4.1	583	34.1	583	3.3	22.479	109.016	g500-S2100	m650-U80/M4	3	79
1.4	525	4.1	584	34.1	584	1.1	21.225	109.083	g500-S660	m650-U80/M4	3	27
1.4	527	4.1	586	34.0	586	1.5	21.445	109.433	g500-S950	m650-U80/M4	3	47
1.3	556	3.9	618	32.2	618	3.5	22.619	115.492	g500-S3100	m650-U80/M4	3	119
1.2	590	3.7	655	30.4	655	1.4	21.441	122.461	g500-S950	m650-U80/M4	3	47
1.2	599	3.6	665	29.9	665	0.9	21.223	124.289	g500-S660	m650-U80/M4	3	27
1.1	629	3.4	699	28.5	699	3.5	22.580	130.603	g500-S3100	m650-U80/M4	3	119
1.1	686	3.2	762	26.1	762	1.2	21.314	142.437	g500-S950	m650-U80/M4	3	47
1.0	753	2.9	837	23.8	837	2.3	21.701	156.407	g500-S2100	m650-U80/M4	3	79
0.9	768	2.8	853	23.3	853	1.0	21.312	159.394	g500-S950	m650-U80/M4	3	47
0.9	837	2.6	930	21.4	930	2.1	21.695	173.820	g500-S2100	m650-U80/M4	3	79
0.8	853	2.5	948	21.0	948	0.9	21.254	177.178	g500-S950	m650-U80/M4	3	47
0.8	887	2.4	986	20.2	986	2.9	21.802	184.146	g500-S3100	m650-U80/M4	3	119
0.8	937	2.3	1041	19.1	1041	1.8	21.537	194.556	g500-S2100	m650-U80/M4	3	79
0.7	1003	2.2	1114	17.9	1114	2.6	21.787	208.240	g500-S3100	m650-U80/M4	3	119
0.7	1041	2.1	1157	17.2	1157	1.7	21.533	216.215	g500-S2100	m650-U80/M4	3	79
0.7	1103	2.0	1226	16.2	1226	2.4	21.568	229.059	g500-S3100	m650-U80/M4	3	119
0.6	1148	1.9	1275	15.6	1275	2.5	21.973	238.252	g500-S4500	m650-U80/M4	3	194
0.6	1213	1.8	1347	14.8	1347	1.4	21.372	251.778	g500-S2100	m650-U80/M4	3	79
0.6	1248	1.7	1386	14.4	1386	2.1	21.558	259.030	g500-S3100	m650-U80/M4	3	119
0.6	1281	1.7	1423	14.0	1423	2.5	21.961	265.956	g500-S4500	m650-U80/M4	3	194
0.5	1348	1.6	1497	13.3	1497	1.3	21.370	279.807	g500-S2100	m650-U80/M4	3	79
0.5	1393	1.6	1547	12.9	1547	2.2	21.736	289.151	g500-S4500	m650-U80/M4	3	194



Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n_{22}	M_{22}	n_{21}	M_{21}	n_2	M_2	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
0.5	1428	1.5	1586	12.5	1586	1.8	21.391	296.430	g500-S3100	m650-U80/M4	3	119
0.5	1472	1.5	1635	12.2	1635	1.2	21.299	305.567	g500-S2100	m650-U80/M4	3	79
0.5	1504	1.4	1671	11.7	1671	1.7	21.562	316.910	g500-S3100	m650-U80/M4	4	122
0.5	1519	1.4	1688	11.6	1688	1.1	21.390	320.263	g500-S2100	m650-U80/M4	4	82
0.5	1541	1.4	1713	11.5	1713	2.5	21.728	324.889	g500-S4500	m650-U80/M4	4	197
0.5	1555	1.4	1727	11.5	1727	2.2	21.728	322.773	g500-S4500	m650-U80/M4	3	194
0.4	1615	1.3	1794	11.1	1794	1.6	21.385	335.215	g500-S3100	m650-U80/M4	3	119
0.4	1636	1.3	1817	11.0	1817	1.1	21.297	339.584	g500-S2100	m650-U80/M4	3	79
0.4	1662	1.3	1847	10.6	1847	1.0	21.375	350.353	g500-S2100	m650-U80/M4	4	82
0.4	1700	1.3	1889	10.4	1889	1.5	21.557	358.375	g500-S3100	m650-U80/M4	4	122
0.4	1721	1.2	1912	10.3	1912	2.2	21.722	362.667	g500-S4500	m650-U80/M4	4	197
0.4	1733	1.3	1925	10.3	1925	1.5	21.311	359.758	g500-S3100	m650-U80/M4	3	119
0.4	1761	1.2	1956	10.2	1956	1.7	21.508	365.500	g500-S4500	m650-U80/M4	3	194
0.4	1847	1.2	2052	9.6	2052	0.9	21.374	389.356	g500-S2100	m650-U80/M4	4	82
0.4	1860	1.2	2067	9.6	2067	0.9	21.229	386.250	g500-S2100	m650-U80/M4	3	79
0.4	1888	1.1	2098	9.3	2098	2.0	21.644	397.989	g500-S4500	m650-U80/M4	4	197
0.4	1918	1.1	2131	9.2	2131	1.4	21.515	404.222	g500-S3100	m650-U80/M4	4	122
0.4	1960	1.1	2177	9.1	2177	1.3	21.307	406.829	g500-S3100	m650-U80/M4	3	119
0.4	1965	1.1	2184	9.1	2184	1.7	21.503	408.000	g500-S4500	m650-U80/M4	3	194
0.3	2108	1.0	2342	8.4	2342	1.8	21.640	444.267	g500-S4500	m650-U80/M4	4	197
0.3	2169	1.0	2410	8.1	2410	1.2	21.511	457.111	g500-S3100	m650-U80/M4	4	122
0.3	2349	0.9	2610	7.5	2610	1.1	21.487	495.172	g500-S3100	m650-U80/M4	4	122
0.3	2458	0.9	2731	7.2	2731	1.5	21.562	518.017	g500-S4500	m650-U80/M4	4	197
0.3	2657	0.8	2952	6.6	2952	1.0	21.485	559.961	g500-S3100	m650-U80/M4	4	122
0.3	2743	0.8	3048	6.4	3048	1.4	21.559	578.252	g500-S4500	m650-U80/M4	4	197
0.2	3012	0.7	3347	5.9	3347	1.3	21.519	634.887	g500-S4500	m650-U80/M4	4	197
0.2	3362	0.6	3736	5.2	3736	1.1	21.518	708.711	g500-S4500	m650-U80/M4	4	197
0.2	3921	0.5	4356	4.5	4356	1.0	21.358	826.361	g500-S4500	m650-U80/M4	4	197



124 Hz: 3 kW

Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz							z	m
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i				
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
44.9	22.5	135	25.0	1114	25.0	4.1	40.960	3.339	g500-S400	m650-U90/M4	2	25
41.0	24.6	123	27.0	1016	27.0	1.7	37.363	3.661	g500-S130	m650-U90/M4	2	19
39.1	25.8	117	29.0	969	29.0	4.1	38.396	3.840	g500-S220	m650-U90/M4	2	21
32.8	30.8	98.3	34.0	812	34.0	4.1	38.707	4.579	g500-S400	m650-U90/M4	2	25
29.9	33.8	89.6	38.0	741	38.0	1.5	36.687	5.021	g500-S130	m650-U90/M4	2	19
28.5	35.4	85.4	39.0	706	39.0	3.4	37.344	5.267	g500-S220	m650-U90/M4	2	21
25.6	39.4	76.8	44.0	635	44.0	3.8	37.661	5.860	g500-S400	m650-U90/M4	2	25
23.4	43.1	70.2	48.0	580	48.0	3.8	37.376	6.411	g500-S400	m650-U90/M4	2	25
23.3	43.2	70.0	48.0	579	48.0	1.3	36.373	6.425	g500-S130	m650-U90/M4	2	19
22.2	45.5	66.5	51.0	550	51.0	3.2	37.441	6.767	g500-S220	m650-U90/M4	2	21
21.8	46.3	65.4	51.0	541	51.0	4.0	39.284	6.880	g500-S660	m650-U90/M4	2	30
21.3	47.3	64.0	53.0	529	53.0	1.3	36.288	7.029	g500-S130	m650-U90/M4	2	19
20.1	50.2	60.3	56.0	498	56.0	4.1	37.979	7.467	g500-S400	m650-U90/M4	2	25
19.6	51.5	58.7	57.0	485	57.0	2.8	37.299	7.667	g500-S220	m650-U90/M4	2	21
19.5	51.8	58.4	58.0	483	58.0	4.0	40.880	7.702	g500-S950	m650-U90/M4	2	50
18.0	56.0	54.1	62.0	447	62.0	1.4	36.485	8.322	g500-S130	m650-U90/M4	2	19
17.8	56.7	53.3	63.0	441	63.0	4.1	37.745	8.436	g500-S400	m650-U90/M4	2	25
16.2	62.4	48.5	69.0	401	69.0	2.3	36.836	9.280	g500-S220	m650-U90/M4	2	21
15.9	63.3	47.8	70.0	395	70.0	1.3	36.830	9.411	g500-S130	m650-U90/M4	2	19
14.6	68.9	43.9	77.0	363	77.0	3.9	37.122	10.240	g500-S400	m650-U90/M4	2	25
14.3	70.7	42.8	79.0	354	79.0	2.1	36.761	10.514	g500-S220	m650-U90/M4	2	21
13.3	75.7	40.0	84.0	330	84.0	4.0	38.206	11.262	g500-S660	m650-U90/M4	2	30
13.1	76.7	39.4	85.0	326	85.0	1.1	36.221	11.413	g500-S130	m650-U90/M4	2	19
13.0	77.8	38.9	86.0	322	86.0	3.4	36.998	11.569	g500-S400	m650-U90/M4	2	25
12.6	79.9	37.9	89.0	313	89.0	1.8	36.519	11.876	g500-S220	m650-U90/M4	2	21
12.2	82.8	36.5	92.0	302	92.0	4.1	37.922	12.320	g500-S660	m650-U90/M4	2	30
11.7	86.3	35.1	96.0	290	96.0	4.0	38.016	12.832	g500-S660	m650-U90/M4	2	30
11.6	86.8	34.9	96.0	288	96.0	1.0	36.404	12.907	g500-S130	m650-U90/M4	2	19
11.5	87.4	34.6	97.0	286	97.0	1.7	36.421	12.992	g500-S220	m650-U90/M4	2	21
11.4	88.1	34.3	98.0	284	98.0	3.0	36.693	13.105	g500-S400	m650-U90/M4	2	25
11.1	90.5	33.4	101	277	101	1.6	36.473	13.456	g500-S220	m650-U90/M4	2	21
10.7	94.4	32.1	105	265	105	4.1	37.763	14.037	g500-S660	m650-U90/M4	2	30
10.5	96.4	31.4	107	260	107	2.8	36.567	14.336	g500-S400	m650-U90/M4	2	25
10.2	99.0	30.6	110	253	110	1.5	36.383	14.720	g500-S220	m650-U90/M4	2	21
10.1	99.5	30.4	111	251	111	2.7	36.617	14.806	g500-S400	m650-U90/M4	2	25
9.5	106	28.6	117	237	117	3.8	37.313	15.714	g500-S660	m650-U90/M4	2	30
9.4	108	28.1	120	233	120	4.0	39.312	16.000	g500-S950	m650-U90/M4	2	50
9.3	109	27.8	121	230	121	2.4	36.504	16.197	g500-S400	m650-U90/M4	2	25
9.1	111	27.2	124	225	124	1.3	36.242	16.571	g500-S220	m650-U90/M4	2	21
8.4	120	25.1	134	208	134	3.7	37.215	17.905	g500-S660	m650-U90/M4	2	30
8.4	120	25.1	134	208	134	4.0	39.142	17.905	g500-S950	m650-U90/M4	2	50
8.2	123	24.6	137	203	137	2.5	36.331	18.286	g500-S400	m650-U90/M4	2	25
8.0	126	24.0	140	198	140	1.3	36.218	18.776	g500-S220	m650-U90/M4	2	21
7.8	129	23.4	144	193	144	3.8	36.954	19.250	g500-S660	m650-U90/M4	2	30
7.4	137	22.2	152	183	152	1.2	36.136	20.300	g500-S220	m650-U90/M4	2	21
7.3	139	21.8	154	180	154	2.2	36.292	20.659	g500-S400	m650-U90/M4	2	25
6.8	148	20.5	164	170	164	3.4	36.889	21.933	g500-S660	m650-U90/M4	2	30
6.7	151	20.1	167	166	167	2.0	36.196	22.400	g500-S400	m650-U90/M4	2	25
6.5	155	19.6	172	162	172	1.1	36.120	23.000	g500-S220	m650-U90/M4	2	21
6.0	169	18.0	187	149	187	2.6	36.447	25.056	g500-S660	m650-U90/M4	2	30
5.9	170	17.8	189	147	189	1.8	36.170	25.308	g500-S400	m650-U90/M4	2	25



Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
5.9	172	17.6	191	146	191	3.8	37.630	25.511	g500-S950	m650-U90/M4	2	50
5.7	178	17.0	197	141	197	0.9	36.009	26.422	g500-S220	m650-U90/M4	2	21
5.3	192	15.8	213	130	213	2.6	36.409	28.548	g500-S660	m650-U90/M4	2	30
5.3	192	15.8	213	130	213	3.7	37.563	28.548	g500-S950	m650-U90/M4	2	50
5.1	196	15.4	218	128	218	1.5	36.044	29.156	g500-S400	m650-U90/M4	2	25
4.8	210	14.4	233	119	233	2.6	36.267	31.167	g500-S660	m650-U90/M4	2	30
4.8	210	14.4	234	119	234	3.5	37.059	31.267	g500-S950	m650-U90/M4	2	50
4.6	222	13.7	246	113	246	1.5	36.028	32.940	g500-S400	m650-U90/M4	2	25
4.3	235	12.9	261	106	261	3.4	37.014	34.989	g500-S950	m650-U90/M4	2	50
4.2	239	12.7	265	105	265	2.3	36.242	35.511	g500-S660	m650-U90/M4	2	30
4.1	244	12.4	271	103	271	1.4	35.974	36.267	g500-S400	m650-U90/M4	2	25
3.7	271	11.2	301	92.2	301	1.7	36.090	40.333	g500-S660	m650-U90/M4	2	30
3.7	276	11.0	306	90.8	306	1.2	35.964	40.974	g500-S400	m650-U90/M4	2	25
3.7	276	11.0	307	90.6	307	2.9	36.587	41.067	g500-S950	m650-U90/M4	2	50
3.4	299	10.1	332	83.7	332	3.5	38.419	44.431	g500-S2100	m650-U90/M4	2	82
3.3	309	9.8	343	80.9	343	1.7	36.075	45.956	g500-S660	m650-U90/M4	2	30
3.3	309	9.8	343	80.9	343	2.6	36.561	45.956	g500-S950	m650-U90/M4	2	50
3.1	329	9.2	366	76.0	366	1.1	36.011	48.950	g500-S660	m650-U90/M4	2	30
3.0	330	9.0	367	74.6	367	1.4	36.190	49.867	g500-S660	m650-U90/M4	3	30
3.0	331	9.0	368	74.4	368	2.2	36.878	50.027	g500-S950	m650-U90/M4	3	50
3.0	332	9.1	369	75.3	369	3.5	38.336	49.378	g500-S2100	m650-U90/M4	2	82
3.0	335	9.0	372	74.6	372	2.3	36.378	49.840	g500-S950	m650-U90/M4	2	50
2.9	352	8.6	391	71.1	391	3.5	38.951	52.311	g500-S3100	m650-U90/M4	2	121
2.8	363	8.3	403	69.0	403	3.1	37.711	53.924	g500-S2100	m650-U90/M4	2	82
2.7	371	8.0	412	66.4	412	1.9	36.861	55.982	g500-S950	m650-U90/M4	3	50
2.7	375	8.1	417	66.7	417	1.1	36.001	55.773	g500-S660	m650-U90/M4	2	30
2.7	375	8.1	417	66.7	417	2.1	36.360	55.773	g500-S950	m650-U90/M4	2	50
2.6	376	7.9	418	65.5	418	1.3	36.181	56.818	g500-S660	m650-U90/M4	3	30
2.5	398	7.6	442	62.9	442	3.5	38.759	59.156	g500-S3100	m650-U90/M4	2	121
2.5	403	7.5	448	62.1	448	3.1	37.654	59.927	g500-S2100	m650-U90/M4	2	82
2.4	423	7.1	470	58.3	470	1.2	36.070	63.817	g500-S660	m650-U90/M4	3	30
2.4	424	7.1	471	59.0	471	1.3	36.172	63.000	g500-S950	m650-U90/M4	2	50
2.3	424	7.0	471	58.1	471	1.7	36.544	64.022	g500-S950	m650-U90/M4	3	50
2.4	427	7.1	474	58.6	474	3.1	38.072	63.487	g500-S3100	m650-U90/M4	2	121
2.2	458	6.6	509	54.6	509	2.4	37.059	68.162	g500-S2100	m650-U90/M4	2	82
2.1	462	6.4	514	53.3	514	1.1	36.035	69.813	g500-S660	m650-U90/M4	3	30
2.1	464	6.4	515	53.1	515	1.7	36.443	70.037	g500-S950	m650-U90/M4	3	50
2.1	466	6.4	517	52.9	517	3.7	37.979	70.302	g500-S2100	m650-U90/M4	3	82
2.1	474	6.4	527	52.8	527	1.3	36.161	70.500	g500-S950	m650-U90/M4	2	50
2.1	475	6.3	527	51.9	527	1.7	36.534	71.644	g500-S950	m650-U90/M4	3	50
2.1	482	6.2	535	51.2	535	1.2	36.064	72.713	g500-S660	m650-U90/M4	3	30
2.1	483	6.3	536	51.8	536	3.1	37.941	71.793	g500-S3100	m650-U90/M4	2	121
2.0	509	5.9	566	49.1	566	2.4	37.024	75.750	g500-S2100	m650-U90/M4	2	82
2.0	509	5.9	566	48.4	566	3.4	37.732	76.907	g500-S2100	m650-U90/M4	3	82
1.9	517	5.8	575	47.6	575	3.3	37.946	78.128	g500-S2100	m650-U90/M4	3	82
1.9	519	5.7	577	47.5	577	1.5	36.434	78.375	g500-S950	m650-U90/M4	3	50
1.9	527	5.7	585	46.8	585	1.1	36.030	79.545	g500-S660	m650-U90/M4	3	30
1.8	548	5.4	609	44.9	609	4.7	38.218	82.769	g500-S3100	m650-U90/M4	3	122
1.8	566	5.3	629	43.5	629	3.0	37.704	85.468	g500-S2100	m650-U90/M4	3	82
1.7	590	5.1	655	41.8	655	0.9	35.965	89.048	g500-S660	m650-U90/M4	3	30
1.7	592	5.0	657	41.6	657	1.4	36.255	89.333	g500-S950	m650-U90/M4	3	50
1.7	600	5.0	666	41.1	666	4.3	37.932	90.546	g500-S3100	m650-U90/M4	3	122



Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
1.6	620	4.8	689	39.7	689	4.2	38.142	93.599	g500-S3100	m650-U90/M4	3	122
1.5	650	4.6	722	37.9	722	2.6	37.196	98.095	g500-S2100	m650-U90/M4	3	82
1.5	662	4.5	736	37.2	736	1.2	36.249	99.968	g500-S950	m650-U90/M4	3	50
1.5	678	4.4	753	36.3	753	3.8	37.868	102.393	g500-S3100	m650-U90/M4	3	122
1.4	722	4.1	802	34.1	802	2.4	37.179	109.016	g500-S2100	m650-U90/M4	3	82
1.4	725	4.1	805	34.0	805	1.1	36.145	109.433	g500-S950	m650-U90/M4	3	50
1.3	765	3.9	850	32.2	850	3.4	37.319	115.492	g500-S3100	m650-U90/M4	3	122
1.2	796	3.7	884	31.0	884	2.2	36.876	120.167	g500-S2100	m650-U90/M4	3	82
1.2	811	3.7	901	30.4	901	1.0	36.141	122.461	g500-S950	m650-U90/M4	3	50
1.1	865	3.4	961	28.5	961	3.0	37.280	130.603	g500-S3100	m650-U90/M4	3	122
1.1	884	3.4	983	27.9	983	1.9	36.865	133.544	g500-S2100	m650-U90/M4	3	82
1.1	937	3.2	1041	26.3	1041	2.8	36.958	141.478	g500-S3100	m650-U90/M4	3	122
1.0	980	3.0	1089	25.1	1089	3.9	37.852	148.005	g500-S4500	m650-U90/M4	3	197
1.0	1036	2.9	1151	23.8	1151	1.7	36.401	156.407	g500-S2100	m650-U90/M4	3	82
0.9	1060	2.8	1177	23.3	1177	2.5	36.932	159.989	g500-S3100	m650-U90/M4	3	122
0.9	1094	2.7	1216	22.5	1216	3.5	37.822	165.215	g500-S4500	m650-U90/M4	3	197
0.9	1151	2.6	1279	21.4	1279	1.5	36.395	173.820	g500-S2100	m650-U90/M4	3	82
0.8	1201	2.5	1335	20.5	1335	3.1	37.207	181.396	g500-S4500	m650-U90/M4	3	197
0.8	1220	2.4	1355	20.2	1355	2.1	36.502	184.146	g500-S3100	m650-U90/M4	3	122
0.8	1289	2.3	1432	19.1	1432	1.3	36.237	194.556	g500-S2100	m650-U90/M4	3	82
0.7	1341	2.2	1490	18.4	1490	2.8	37.186	202.489	g500-S4500	m650-U90/M4	3	197
0.7	1379	2.2	1532	17.9	1532	1.9	36.487	208.240	g500-S3100	m650-U90/M4	3	122
0.7	1432	2.1	1591	17.2	1591	1.2	36.233	216.215	g500-S2100	m650-U90/M4	3	82
0.7	1517	2.0	1686	16.2	1686	1.7	36.268	229.059	g500-S3100	m650-U90/M4	3	122
0.6	1578	1.9	1753	15.6	1753	2.4	36.673	238.252	g500-S4500	m650-U90/M4	3	197
0.6	1668	1.8	1853	14.8	1853	1.0	36.072	251.778	g500-S2100	m650-U90/M4	3	82
0.6	1716	1.7	1906	14.4	1906	1.5	36.258	259.030	g500-S3100	m650-U90/M4	3	122
0.6	1761	1.7	1957	14.0	1957	2.1	36.661	265.956	g500-S4500	m650-U90/M4	3	197
0.5	1853	1.6	2059	13.3	2059	0.9	36.070	279.807	g500-S2100	m650-U90/M4	3	82
0.5	1915	1.6	2128	12.9	2128	2.0	36.436	289.151	g500-S4500	m650-U90/M4	3	197
0.5	1963	1.5	2181	12.5	2181	1.3	36.091	296.430	g500-S3100	m650-U90/M4	3	122
0.5	2067	1.4	2297	11.7	2297	1.3	36.262	316.910	g500-S3100	m650-U90/M4	4	125
0.5	2119	1.4	2355	11.5	2355	1.8	36.428	324.889	g500-S4500	m650-U90/M4	4	200
0.5	2138	1.4	2375	11.5	2375	1.8	36.428	322.773	g500-S4500	m650-U90/M4	3	197
0.4	2220	1.3	2467	11.1	2467	1.2	36.085	335.215	g500-S3100	m650-U90/M4	3	122
0.4	2338	1.3	2598	10.4	2598	1.1	36.257	358.375	g500-S3100	m650-U90/M4	4	125
0.4	2366	1.2	2629	10.3	2629	1.6	36.422	362.667	g500-S4500	m650-U90/M4	4	200
0.4	2383	1.3	2647	10.3	2647	1.1	36.011	359.758	g500-S3100	m650-U90/M4	3	122
0.4	2421	1.2	2690	10.2	2690	1.4	36.208	365.500	g500-S4500	m650-U90/M4	3	197
0.4	2596	1.1	2885	9.3	2885	1.5	36.344	397.989	g500-S4500	m650-U90/M4	4	200
0.4	2637	1.1	2930	9.2	2930	1.0	36.215	404.222	g500-S3100	m650-U90/M4	4	125
0.4	2694	1.1	2994	9.1	2994	1.0	36.007	406.829	g500-S3100	m650-U90/M4	3	122
0.4	2702	1.1	3002	9.1	3002	1.4	36.203	408.000	g500-S4500	m650-U90/M4	3	197
0.3	2898	1.0	3220	8.4	3220	1.3	36.340	444.267	g500-S4500	m650-U90/M4	4	200
0.3	3379	0.9	3755	7.2	3755	1.1	36.262	518.017	g500-S4500	m650-U90/M4	4	200
0.3	3772	0.8	4191	6.4	4191	1.0	36.259	578.252	g500-S4500	m650-U90/M4	4	200
0.2	4142	0.7	4602	5.9	4602	0.9	36.219	634.887	g500-S4500	m650-U90/M4	4	200



124 Hz: 4 kW

Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz							z	m
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i				
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
44.9	29.9	135	33.0	1114	33.0	3.1	51.060	3.339	g500-S400	m650-U90/L4	2	27
41.0	32.8	123	37.0	1016	37.0	1.3	47.463	3.661	g500-S130	m650-U90/L4	2	22
39.1	34.4	117	38.0	969	38.0	3.1	48.496	3.840	g500-S220	m650-U90/L4	2	23
32.8	41.0	98.3	46.0	812	46.0	3.1	48.807	4.579	g500-S400	m650-U90/L4	2	27
29.9	45.0	89.6	50.0	741	50.0	1.1	46.787	5.021	g500-S130	m650-U90/L4	2	22
28.5	47.2	85.4	53.0	706	53.0	2.5	47.444	5.267	g500-S220	m650-U90/L4	2	23
25.6	52.5	76.8	59.0	635	59.0	2.8	47.761	5.860	g500-S400	m650-U90/L4	2	27
23.4	57.4	70.2	64.0	580	64.0	2.9	47.476	6.411	g500-S400	m650-U90/L4	2	27
23.3	57.5	70.0	64.0	579	64.0	1.0	46.473	6.425	g500-S130	m650-U90/L4	2	22
22.2	60.6	66.5	68.0	550	68.0	2.4	47.541	6.767	g500-S220	m650-U90/L4	2	23
21.8	61.6	65.4	69.0	541	69.0	3.0	49.384	6.880	g500-S660	m650-U90/L4	2	32
21.3	62.9	64.0	70.0	529	70.0	1.0	46.388	7.029	g500-S130	m650-U90/L4	2	22
20.1	66.9	60.3	75.0	498	75.0	3.1	48.079	7.467	g500-S400	m650-U90/L4	2	27
19.6	68.7	58.7	77.0	485	77.0	2.1	47.399	7.667	g500-S220	m650-U90/L4	2	23
19.5	69.0	58.4	77.0	483	77.0	3.0	50.980	7.702	g500-S950	m650-U90/L4	2	52
18.0	74.5	54.1	83.0	447	83.0	1.0	46.585	8.322	g500-S130	m650-U90/L4	2	22
17.8	75.5	53.3	84.0	441	84.0	3.1	47.845	8.436	g500-S400	m650-U90/L4	2	27
16.2	83.1	48.5	93.0	401	93.0	1.8	46.936	9.280	g500-S220	m650-U90/L4	2	23
15.9	84.3	47.8	94.0	395	94.0	1.0	46.930	9.411	g500-S130	m650-U90/L4	2	22
14.6	91.7	43.9	102	363	102	2.9	47.222	10.240	g500-S400	m650-U90/L4	2	27
14.3	94.2	42.8	105	354	105	1.6	46.861	10.514	g500-S220	m650-U90/L4	2	23
13.3	101	40.0	113	330	113	3.0	48.306	11.262	g500-S660	m650-U90/L4	2	32
13.0	104	38.9	116	322	116	2.6	47.098	11.569	g500-S400	m650-U90/L4	2	27
12.6	106	37.9	119	313	119	1.4	46.619	11.876	g500-S220	m650-U90/L4	2	23
12.2	110	36.5	123	302	123	3.1	48.022	12.320	g500-S660	m650-U90/L4	2	32
11.7	115	35.1	128	290	128	3.0	48.116	12.832	g500-S660	m650-U90/L4	2	32
11.5	116	34.6	130	286	130	1.3	46.521	12.992	g500-S220	m650-U90/L4	2	23
11.4	117	34.3	131	284	131	2.3	46.793	13.105	g500-S400	m650-U90/L4	2	27
11.1	121	33.4	134	277	134	1.2	46.573	13.456	g500-S220	m650-U90/L4	2	23
10.7	126	32.1	140	265	140	3.1	47.863	14.037	g500-S660	m650-U90/L4	2	32
10.5	128	31.4	143	260	143	2.1	46.667	14.336	g500-S400	m650-U90/L4	2	27
10.2	132	30.6	147	253	147	1.1	46.483	14.720	g500-S220	m650-U90/L4	2	23
10.1	133	30.4	148	251	148	2.0	46.717	14.806	g500-S400	m650-U90/L4	2	27
9.5	141	28.6	157	237	157	2.8	47.413	15.714	g500-S660	m650-U90/L4	2	32
9.4	143	28.1	160	233	160	3.0	49.412	16.000	g500-S950	m650-U90/L4	2	52
9.3	145	27.8	162	230	162	1.8	46.604	16.197	g500-S400	m650-U90/L4	2	27
9.1	148	27.2	166	225	166	1.0	46.342	16.571	g500-S220	m650-U90/L4	2	23
8.4	160	25.1	179	208	179	2.7	47.315	17.905	g500-S660	m650-U90/L4	2	32
8.4	160	25.1	179	208	179	3.0	49.242	17.905	g500-S950	m650-U90/L4	2	52
8.2	164	24.6	183	203	183	1.8	46.431	18.286	g500-S400	m650-U90/L4	2	27
8.0	168	24.0	188	198	188	1.0	46.318	18.776	g500-S220	m650-U90/L4	2	23
7.8	172	23.4	192	193	192	2.9	47.054	19.250	g500-S660	m650-U90/L4	2	32
7.4	182	22.2	203	183	203	0.9	46.236	20.300	g500-S220	m650-U90/L4	2	23
7.3	185	21.8	206	180	206	1.6	46.392	20.659	g500-S400	m650-U90/L4	2	27
6.8	196	20.5	219	170	219	2.5	46.989	21.933	g500-S660	m650-U90/L4	2	32
6.7	201	20.1	224	166	224	1.5	46.296	22.400	g500-S400	m650-U90/L4	2	27
6.0	224	18.0	250	149	250	1.9	46.547	25.056	g500-S660	m650-U90/L4	2	32
5.9	227	17.8	253	147	253	1.3	46.270	25.308	g500-S400	m650-U90/L4	2	27
5.9	229	17.6	255	146	255	2.9	47.730	25.511	g500-S950	m650-U90/L4	2	52
5.3	256	15.8	285	130	285	1.9	46.509	28.548	g500-S660	m650-U90/L4	2	32
5.3	256	15.8	285	130	285	2.8	47.663	28.548	g500-S950	m650-U90/L4	2	52



Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n_{22}	M_{22}	n_{21}	M_{21}	n_2	M_2	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
5.1	261	15.4	291	128	291	1.2	46.144	29.156	g500-S400	m650-U90/L4	2	27
4.8	279	14.4	311	119	311	2.0	46.367	31.167	g500-S660	m650-U90/L4	2	32
4.8	280	14.4	312	119	312	2.6	47.159	31.267	g500-S950	m650-U90/L4	2	52
4.6	295	13.7	329	113	329	1.1	46.128	32.940	g500-S400	m650-U90/L4	2	27
4.3	313	12.9	350	106	350	2.5	47.114	34.989	g500-S950	m650-U90/L4	2	52
4.2	318	12.7	355	105	355	1.7	46.342	35.511	g500-S660	m650-U90/L4	2	32
4.1	325	12.4	362	103	362	1.0	46.074	36.267	g500-S400	m650-U90/L4	2	27
3.7	361	11.2	403	92.2	403	1.3	46.190	40.333	g500-S660	m650-U90/L4	2	32
3.7	367	11.0	409	90.8	409	0.9	46.064	40.974	g500-S400	m650-U90/L4	2	27
3.7	368	11.0	410	90.6	410	2.2	46.687	41.067	g500-S950	m650-U90/L4	2	52
3.4	398	10.1	444	83.7	444	2.6	48.519	44.431	g500-S2100	m650-U90/L4	2	84
3.3	412	9.8	459	80.9	459	1.3	46.175	45.956	g500-S660	m650-U90/L4	2	32
3.3	412	9.8	459	80.9	459	1.9	46.661	45.956	g500-S950	m650-U90/L4	2	52
3.0	440	9.0	491	74.6	491	1.1	46.290	49.867	g500-S660	m650-U90/L4	3	32
3.0	441	9.0	492	74.4	492	1.6	46.978	50.027	g500-S950	m650-U90/L4	3	52
3.0	442	9.1	493	75.3	493	2.6	48.436	49.378	g500-S2100	m650-U90/L4	2	84
3.0	446	9.0	498	74.6	498	1.7	46.478	49.840	g500-S950	m650-U90/L4	2	52
2.9	469	8.6	523	71.1	523	2.6	49.051	52.311	g500-S3100	m650-U90/L4	2	123
2.8	483	8.3	539	69.0	539	2.3	47.811	53.924	g500-S2100	m650-U90/L4	2	84
2.7	494	8.0	551	66.4	551	1.5	46.961	55.982	g500-S950	m650-U90/L4	3	52
2.7	500	8.1	557	66.7	557	1.6	46.460	55.773	g500-S950	m650-U90/L4	2	52
2.6	501	7.9	559	65.5	559	1.0	46.281	56.818	g500-S660	m650-U90/L4	3	32
2.5	530	7.6	591	62.9	591	2.6	48.859	59.156	g500-S3100	m650-U90/L4	2	123
2.5	537	7.5	599	62.1	599	2.3	47.754	59.927	g500-S2100	m650-U90/L4	2	84
2.4	564	7.1	630	59.0	630	1.0	46.272	63.000	g500-S950	m650-U90/L4	2	52
2.3	565	7.0	630	58.1	630	1.3	46.644	64.022	g500-S950	m650-U90/L4	3	52
2.4	569	7.1	634	58.6	634	2.3	48.172	63.487	g500-S3100	m650-U90/L4	2	123
2.2	610	6.6	681	54.6	681	1.8	47.159	68.162	g500-S2100	m650-U90/L4	2	84
2.1	618	6.4	689	53.1	689	1.3	46.543	70.037	g500-S950	m650-U90/L4	3	52
2.1	620	6.4	692	52.9	692	2.8	48.079	70.302	g500-S2100	m650-U90/L4	3	84
2.1	631	6.4	705	52.8	705	1.0	46.261	70.500	g500-S950	m650-U90/L4	2	52
2.1	632	6.3	705	51.9	705	1.3	46.634	71.644	g500-S950	m650-U90/L4	3	52
2.1	643	6.3	717	51.8	717	2.3	48.041	71.793	g500-S3100	m650-U90/L4	2	123
2.0	678	5.9	757	49.1	757	1.8	47.124	75.750	g500-S2100	m650-U90/L4	2	84
2.0	678	5.9	757	48.4	757	2.5	47.832	76.907	g500-S2100	m650-U90/L4	3	84
1.9	689	5.8	769	47.6	769	2.5	48.046	78.128	g500-S2100	m650-U90/L4	3	84
1.9	691	5.7	771	47.5	771	1.2	46.534	78.375	g500-S950	m650-U90/L4	3	52
1.8	730	5.4	815	44.9	815	3.5	48.318	82.769	g500-S3100	m650-U90/L4	3	124
1.8	754	5.3	841	43.5	841	2.3	47.804	85.468	g500-S2100	m650-U90/L4	3	84
1.7	788	5.0	879	41.6	879	1.0	46.355	89.333	g500-S950	m650-U90/L4	3	52
1.7	799	5.0	891	41.1	891	3.2	48.032	90.546	g500-S3100	m650-U90/L4	3	124
1.6	819	4.8	914	40.1	914	3.8	49.977	92.825	g500-S4500	m650-U90/L4	3	199
1.6	826	4.8	921	39.7	921	3.1	48.242	93.599	g500-S3100	m650-U90/L4	3	124
1.5	865	4.6	966	37.9	966	2.0	47.296	98.095	g500-S2100	m650-U90/L4	3	84
1.5	903	4.4	1008	36.3	1008	2.9	47.968	102.393	g500-S3100	m650-U90/L4	3	124
1.4	914	4.3	1020	35.9	1020	3.8	49.899	103.619	g500-S4500	m650-U90/L4	3	199
1.4	962	4.1	1073	34.1	1073	1.8	47.279	109.016	g500-S2100	m650-U90/L4	3	84
1.3	1019	3.9	1137	32.2	1137	2.5	47.419	115.492	g500-S3100	m650-U90/L4	3	124
1.2	1060	3.7	1183	31.0	1183	1.6	46.976	120.167	g500-S2100	m650-U90/L4	3	84
1.1	1152	3.4	1286	28.5	1286	2.2	47.380	130.603	g500-S3100	m650-U90/L4	3	124
1.1	1178	3.4	1315	27.9	1315	1.5	46.965	133.544	g500-S2100	m650-U90/L4	3	84
1.1	1248	3.2	1393	26.3	1393	2.1	47.058	141.478	g500-S3100	m650-U90/L4	3	124



Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n_{22}	M_{22}	n_{21}	M_2	n_2	M_2	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
1.0	1306	3.0	1457	25.1	1457	2.9	47.952	148.005	g500-S4500	m650-U90/L4	3	199
1.0	1380	2.9	1540	23.8	1540	1.2	46.501	156.407	g500-S2100	m650-U90/L4	3	84
0.9	1411	2.8	1575	23.3	1575	1.8	47.032	159.989	g500-S3100	m650-U90/L4	3	124
0.9	1457	2.7	1626	22.5	1626	2.6	47.922	165.215	g500-S4500	m650-U90/L4	3	199
0.9	1533	2.6	1711	21.4	1711	1.1	46.495	173.820	g500-S2100	m650-U90/L4	3	84
0.8	1600	2.5	1786	20.5	1786	2.4	47.307	181.396	g500-S4500	m650-U90/L4	3	199
0.8	1624	2.4	1813	20.2	1813	1.6	46.602	184.146	g500-S3100	m650-U90/L4	3	124
0.8	1716	2.3	1915	19.1	1915	1.0	46.337	194.556	g500-S2100	m650-U90/L4	3	84
0.7	1786	2.2	1993	18.4	1993	2.1	47.286	202.489	g500-S4500	m650-U90/L4	3	199
0.7	1837	2.2	2050	17.9	2050	1.4	46.587	208.240	g500-S3100	m650-U90/L4	3	124
0.7	2021	2.0	2255	16.2	2255	1.3	46.368	229.059	g500-S3100	m650-U90/L4	3	124
0.6	2102	1.9	2345	15.6	2345	1.8	46.773	238.252	g500-S4500	m650-U90/L4	3	199
0.6	2285	1.7	2550	14.4	2550	1.1	46.358	259.030	g500-S3100	m650-U90/L4	3	124
0.6	2346	1.7	2618	14.0	2618	1.6	46.761	265.956	g500-S4500	m650-U90/L4	3	199
0.5	2551	1.6	2846	12.9	2846	1.5	46.536	289.151	g500-S4500	m650-U90/L4	3	199
0.5	2615	1.5	2918	12.5	2918	1.0	46.191	296.430	g500-S3100	m650-U90/L4	3	124
0.5	2754	1.4	3073	11.7	3073	0.9	46.362	316.910	g500-S3100	m650-U90/L4	4	127
0.5	2823	1.4	3150	11.5	3150	1.3	46.528	324.889	g500-S4500	m650-U90/L4	4	202
0.5	2847	1.4	3177	11.5	3177	1.3	46.528	322.773	g500-S4500	m650-U90/L4	3	199
0.4	3151	1.2	3516	10.3	3516	1.2	46.522	362.667	g500-S4500	m650-U90/L4	4	202
0.4	3224	1.2	3598	10.2	3598	1.0	46.308	365.500	g500-S4500	m650-U90/L4	3	199
0.4	3458	1.1	3859	9.3	3859	1.1	46.444	397.989	g500-S4500	m650-U90/L4	4	202
0.4	3599	1.1	4016	9.1	4016	1.0	46.303	408.000	g500-S4500	m650-U90/L4	3	199
0.3	3860	1.0	4308	8.4	4308	1.0	46.440	444.267	g500-S4500	m650-U90/L4	4	202



124 Hz: 5.5 kW

Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz							z	m
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i				
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
44.9	40.8	135	46.0	1114	46.0	3.3	81.060	3.339	g500-S400	m650-U100/M4	2	33
39.1	46.9	117	53.0	969	53.0	2.5	78.496	3.840	g500-S220	m650-U100/M4	2	29
38.3	47.9	115	54.0	949	54.0	4.3	84.701	3.920	g500-S660	m650-U100/M4	2	38
32.8	56.0	98.3	63.0	812	63.0	2.9	78.807	4.579	g500-S400	m650-U100/M4	2	33
28.5	64.4	85.4	72.0	706	72.0	1.9	77.444	5.267	g500-S220	m650-U100/M4	2	29
27.9	65.7	83.7	74.0	692	74.0	4.3	81.164	5.376	g500-S660	m650-U100/M4	2	38
27.8	65.9	83.5	74.0	690	74.0	4.3	85.148	5.391	g500-S950	m650-U100/M4	2	57
25.6	71.6	76.8	80.0	635	80.0	2.4	77.761	5.860	g500-S400	m650-U100/M4	2	33
24.8	73.8	74.5	83.0	616	83.0	4.3	83.406	6.038	g500-S950	m650-U100/M4	2	57
23.4	78.4	70.2	88.0	580	88.0	2.2	77.476	6.411	g500-S400	m650-U100/M4	2	33
23.4	78.4	70.1	88.0	580	88.0	4.3	81.381	6.417	g500-S660	m650-U100/M4	2	38
22.2	82.7	66.5	93.0	550	93.0	1.8	77.541	6.767	g500-S220	m650-U100/M4	2	29
21.8	84.1	65.4	94.0	541	94.0	3.6	79.384	6.880	g500-S660	m650-U100/M4	2	38
20.5	89.4	61.6	100	509	100	4.3	80.796	7.311	g500-S660	m650-U100/M4	2	38
20.1	91.3	60.3	102	498	102	2.6	78.079	7.467	g500-S400	m650-U100/M4	2	33
19.6	93.7	58.7	105	485	105	1.5	77.399	7.667	g500-S220	m650-U100/M4	2	29
19.5	94.2	58.4	105	483	105	3.6	80.980	7.702	g500-S950	m650-U100/M4	2	57
18.1	101	54.4	113	450	113	4.3	92.692	8.272	g500-S2100	m650-U100/M4	2	90
17.8	103	53.3	115	441	115	2.4	77.845	8.436	g500-S400	m650-U100/M4	2	33
17.0	108	51.1	120	423	120	3.9	79.399	8.800	g500-S660	m650-U100/M4	2	38
16.8	109	50.5	122	417	122	4.3	104.071	8.917	g500-S3100	m650-U100/M4	2	129
16.2	113	48.5	127	401	127	1.3	76.936	9.280	g500-S220	m650-U100/M4	2	29
15.0	123	44.9	137	371	137	3.4	79.088	10.027	g500-S660	m650-U100/M4	2	38
14.6	125	43.9	140	363	140	2.1	77.222	10.240	g500-S400	m650-U100/M4	2	33
14.3	129	42.8	144	354	144	1.1	76.861	10.514	g500-S220	m650-U100/M4	2	29
13.4	137	40.2	153	332	153	4.3	81.949	11.200	g500-S950	m650-U100/M4	2	57
13.3	138	40.0	154	330	154	3.2	78.306	11.262	g500-S660	m650-U100/M4	2	38
13.0	141	38.9	158	322	158	1.9	77.098	11.569	g500-S400	m650-U100/M4	2	33
12.6	145	37.9	162	313	162	1.0	76.619	11.876	g500-S220	m650-U100/M4	2	29
12.2	151	36.5	169	302	169	2.9	78.022	12.320	g500-S660	m650-U100/M4	2	38
12.0	153	35.9	172	297	172	4.1	80.856	12.544	g500-S950	m650-U100/M4	2	57
11.7	157	35.1	176	290	176	2.8	78.116	12.832	g500-S660	m650-U100/M4	2	38
11.5	159	34.6	178	286	178	0.9	76.521	12.992	g500-S220	m650-U100/M4	2	29
11.4	160	34.3	179	284	179	1.7	76.793	13.105	g500-S400	m650-U100/M4	2	33
10.7	172	32.1	192	265	192	2.5	77.863	14.037	g500-S660	m650-U100/M4	2	38
10.7	172	32.1	192	265	192	3.7	80.578	14.037	g500-S950	m650-U100/M4	2	57
10.5	175	31.4	196	260	196	1.5	76.667	14.336	g500-S400	m650-U100/M4	2	33
10.1	181	30.4	203	251	203	1.5	76.717	14.806	g500-S400	m650-U100/M4	2	33
9.5	192	28.6	215	237	215	2.3	77.413	15.714	g500-S660	m650-U100/M4	2	38
9.4	196	28.1	219	233	219	3.2	79.412	16.000	g500-S950	m650-U100/M4	2	57
9.3	198	27.8	222	230	222	1.3	76.604	16.197	g500-S400	m650-U100/M4	2	33
8.8	208	26.4	233	219	233	4.3	87.969	17.022	g500-S2100	m650-U100/M4	2	90
8.4	219	25.1	245	208	245	2.0	77.315	17.905	g500-S660	m650-U100/M4	2	38
8.4	219	25.1	245	208	245	2.9	79.242	17.905	g500-S950	m650-U100/M4	2	57
8.2	224	24.6	250	203	250	1.3	76.431	18.286	g500-S400	m650-U100/M4	2	33
7.9	231	23.8	259	197	259	4.9	87.403	18.917	g500-S2100	m650-U100/M4	2	90
7.8	235	23.4	263	193	263	2.1	77.054	19.250	g500-S660	m650-U100/M4	2	38
7.7	240	23.0	268	190	268	3.0	78.588	19.600	g500-S950	m650-U100/M4	2	57
7.5	245	22.5	274	186	274	4.9	91.590	20.041	g500-S3100	m650-U100/M4	2	129
7.3	253	21.8	283	180	283	1.2	76.392	20.659	g500-S400	m650-U100/M4	2	33
6.8	268	20.5	300	170	300	1.9	76.989	21.933	g500-S660	m650-U100/M4	2	38



Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
6.8	268	20.5	300	170	300	2.7	78.474	21.933	g500-S950	m650-U100/M4	2	57
6.7	274	20.1	306	166	306	1.1	76.296	22.400	g500-S400	m650-U100/M4	2	33
6.6	277	19.9	310	164	310	4.9	90.283	22.663	g500-S3100	m650-U100/M4	2	129
6.0	306	18.0	343	149	343	1.4	76.547	25.056	g500-S660	m650-U100/M4	2	38
5.9	309	17.8	346	147	346	1.0	76.270	25.308	g500-S400	m650-U100/M4	2	33
5.9	312	17.6	349	146	349	2.3	77.730	25.511	g500-S950	m650-U100/M4	2	57
5.3	346	15.9	387	132	387	3.5	81.393	28.275	g500-S2100	m650-U100/M4	2	90
5.3	349	15.8	391	130	391	1.4	76.509	28.548	g500-S660	m650-U100/M4	2	38
5.3	349	15.8	391	130	391	2.0	77.663	28.548	g500-S950	m650-U100/M4	2	57
4.8	381	14.4	426	119	426	1.4	76.367	31.167	g500-S660	m650-U100/M4	2	38
4.8	382	14.4	428	119	428	2.1	77.159	31.267	g500-S950	m650-U100/M4	2	57
4.8	384	14.3	430	118	430	3.9	81.188	31.422	g500-S2100	m650-U100/M4	2	90
4.5	407	13.5	455	112	455	3.9	82.706	33.289	g500-S3100	m650-U100/M4	2	129
4.4	420	13.1	470	108	470	3.3	80.020	34.333	g500-S2100	m650-U100/M4	2	90
4.3	428	12.9	479	106	479	1.9	77.114	34.989	g500-S950	m650-U100/M4	2	57
4.2	434	12.7	486	105	486	1.3	76.342	35.511	g500-S660	m650-U100/M4	2	38
4.0	460	12.0	515	98.8	515	3.9	82.232	37.644	g500-S3100	m650-U100/M4	2	129
3.9	466	11.8	522	97.5	522	3.3	79.881	38.156	g500-S2100	m650-U100/M4	2	90
3.7	482	11.2	540	92.9	540	2.7	80.682	40.056	g500-S2100	m650-U100/M4	3	90
3.7	494	11.1	553	92.0	553	3.3	80.910	40.422	g500-S3100	m650-U100/M4	2	129
3.7	502	11.0	562	90.6	562	1.6	76.687	41.067	g500-S950	m650-U100/M4	2	57
3.6	514	10.7	575	88.5	575	3.3	84.866	42.044	g500-S4500	m650-U100/M4	2	202
3.4	536	10.1	600	83.6	600	2.5	80.579	44.515	g500-S2100	m650-U100/M4	3	90
3.4	543	10.1	608	83.7	608	2.7	78.519	44.431	g500-S2100	m650-U100/M4	2	90
3.3	559	9.8	625	81.4	625	3.3	80.589	45.711	g500-S3100	m650-U100/M4	2	129
3.3	562	9.8	629	80.9	629	1.4	76.661	45.956	g500-S950	m650-U100/M4	2	57
3.2	568	9.5	635	78.9	635	3.4	81.419	47.159	g500-S3100	m650-U100/M4	3	130
3.2	574	9.6	642	79.3	642	3.3	84.486	46.933	g500-S4500	m650-U100/M4	2	202
3.0	602	9.0	674	74.4	674	1.2	76.978	50.027	g500-S950	m650-U100/M4	3	58
3.0	604	9.1	675	75.3	675	2.7	78.436	49.378	g500-S2100	m650-U100/M4	2	90
3.0	609	9.0	682	74.6	682	1.3	76.478	49.840	g500-S950	m650-U100/M4	2	57
2.9	624	8.8	698	72.9	698	2.8	82.405	51.027	g500-S4500	m650-U100/M4	2	202
2.9	640	8.6	716	71.1	716	2.7	79.051	52.311	g500-S3100	m650-U100/M4	2	129
2.8	642	8.4	719	69.8	719	3.6	81.183	53.330	g500-S3100	m650-U100/M4	3	130
2.8	659	8.3	738	69.0	738	2.2	77.811	53.924	g500-S2100	m650-U100/M4	2	90
2.7	662	8.2	740	67.7	740	2.3	79.027	54.933	g500-S2100	m650-U100/M4	3	90
2.7	674	8.0	754	66.4	754	1.1	76.961	55.982	g500-S950	m650-U100/M4	3	58
2.7	682	8.1	763	66.7	763	1.2	76.460	55.773	g500-S950	m650-U100/M4	2	57
2.6	696	7.9	779	65.3	779	2.8	82.147	56.960	g500-S4500	m650-U100/M4	2	202
2.5	723	7.6	809	62.9	809	2.7	78.859	59.156	g500-S3100	m650-U100/M4	2	129
2.5	733	7.5	820	62.1	820	2.2	77.754	59.927	g500-S2100	m650-U100/M4	2	90
2.5	735	7.4	823	60.9	823	2.1	78.972	61.049	g500-S2100	m650-U100/M4	3	90
2.3	771	7.0	863	58.1	863	0.9	76.644	64.022	g500-S950	m650-U100/M4	3	58
2.4	776	7.1	869	58.6	869	2.2	78.172	63.487	g500-S3100	m650-U100/M4	2	129
2.3	779	7.0	872	57.5	872	3.0	79.419	64.676	g500-S3100	m650-U100/M4	3	130
2.3	782	6.9	876	57.3	876	4.3	83.102	64.978	g500-S4500	m650-U100/M4	3	205
2.3	789	7.0	882	57.7	882	2.2	80.148	64.500	g500-S4500	m650-U100/M4	2	202
2.2	833	6.6	932	54.6	932	1.5	77.159	68.162	g500-S2100	m650-U100/M4	2	90
2.1	843	6.4	944	53.1	944	0.9	76.543	70.037	g500-S950	m650-U100/M4	3	58
2.1	847	6.4	947	52.9	947	2.0	78.079	70.302	g500-S2100	m650-U100/M4	3	90
2.1	863	6.3	965	51.9	965	0.9	76.634	71.644	g500-S950	m650-U100/M4	3	58
2.1	873	6.2	977	51.3	977	4.3	82.943	72.533	g500-S4500	m650-U100/M4	3	205



Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
2.1	876	6.2	981	51.1	981	4.3	81.775	72.775	g500-S4500	m650-U100/M4	3	205
2.1	878	6.3	982	51.8	982	2.2	78.041	71.793	g500-S3100	m650-U100/M4	2	129
2.1	880	6.3	985	51.7	985	2.2	79.987	72.000	g500-S4500	m650-U100/M4	2	202
2.1	881	6.2	986	50.9	986	2.9	79.294	73.138	g500-S3100	m650-U100/M4	3	130
2.0	926	5.9	1036	49.1	1036	1.4	77.124	75.750	g500-S2100	m650-U100/M4	2	90
2.0	926	5.9	1036	48.4	1036	1.8	77.832	76.907	g500-S2100	m650-U100/M4	3	90
1.9	941	5.8	1053	47.6	1053	1.8	78.046	78.128	g500-S2100	m650-U100/M4	3	90
1.8	978	5.5	1095	45.8	1095	3.8	81.649	81.237	g500-S4500	m650-U100/M4	3	205
1.8	997	5.4	1115	44.9	1115	2.6	78.318	82.769	g500-S3100	m650-U100/M4	3	130
1.8	1029	5.3	1152	43.5	1152	1.7	77.804	85.468	g500-S2100	m650-U100/M4	3	90
1.7	1090	5.0	1220	41.1	1220	2.4	78.032	90.546	g500-S3100	m650-U100/M4	3	130
1.6	1118	4.8	1251	40.1	1251	3.4	79.977	92.825	g500-S4500	m650-U100/M4	3	205
1.6	1127	4.8	1261	39.7	1261	2.3	78.242	93.599	g500-S3100	m650-U100/M4	3	130
1.5	1181	4.6	1322	37.9	1322	1.4	77.296	98.095	g500-S2100	m650-U100/M4	3	90
1.5	1233	4.4	1380	36.3	1380	2.1	77.968	102.393	g500-S3100	m650-U100/M4	3	130
1.4	1248	4.3	1396	35.9	1396	3.0	79.899	103.619	g500-S4500	m650-U100/M4	3	205
1.4	1313	4.1	1469	34.1	1469	1.3	77.279	109.016	g500-S2100	m650-U100/M4	3	90
1.3	1369	4.0	1532	32.7	1532	2.7	78.964	113.711	g500-S4500	m650-U100/M4	3	205
1.3	1391	3.9	1556	32.2	1556	1.9	77.419	115.492	g500-S3100	m650-U100/M4	3	130
1.2	1447	3.7	1619	31.0	1619	1.2	76.976	120.167	g500-S2100	m650-U100/M4	3	90
1.2	1529	3.5	1710	29.3	1710	2.5	78.912	126.933	g500-S4500	m650-U100/M4	3	205
1.1	1573	3.4	1760	28.5	1760	1.6	77.380	130.603	g500-S3100	m650-U100/M4	3	130
1.1	1608	3.4	1800	27.9	1800	1.1	76.965	133.544	g500-S2100	m650-U100/M4	3	90
1.1	1704	3.2	1906	26.3	1906	1.5	77.058	141.478	g500-S3100	m650-U100/M4	3	130
1.0	1782	3.0	1994	25.1	1994	2.1	77.952	148.005	g500-S4500	m650-U100/M4	3	205
1.0	1883	2.9	2108	23.8	2108	0.9	76.501	156.407	g500-S2100	m650-U100/M4	3	90
0.9	1927	2.8	2156	23.3	2156	1.3	77.032	159.989	g500-S3100	m650-U100/M4	3	130
0.9	1989	2.7	2226	22.5	2226	1.9	77.922	165.215	g500-S4500	m650-U100/M4	3	205
0.8	2184	2.5	2444	20.5	2444	1.7	77.307	181.396	g500-S4500	m650-U100/M4	3	205
0.8	2217	2.4	2481	20.2	2481	1.2	76.602	184.146	g500-S3100	m650-U100/M4	3	130
0.7	2438	2.2	2729	18.4	2729	1.5	77.286	202.489	g500-S4500	m650-U100/M4	3	205
0.7	2508	2.2	2806	17.9	2806	1.0	76.587	208.240	g500-S3100	m650-U100/M4	3	130
0.7	2758	2.0	3087	16.2	3087	0.9	76.368	229.059	g500-S3100	m650-U100/M4	3	130
0.6	2869	1.9	3210	15.6	3210	1.3	76.773	238.252	g500-S4500	m650-U100/M4	3	205
0.6	3203	1.7	3584	14.0	3584	1.2	76.761	265.956	g500-S4500	m650-U100/M4	3	205
0.5	3482	1.6	3896	12.9	3896	1.1	76.536	289.151	g500-S4500	m650-U100/M4	3	205
0.5	3854	1.4	4312	11.5	4312	1.0	76.528	324.889	g500-S4500	m650-U100/M4	4	208
0.5	3887	1.4	4349	11.5	4349	1.0	76.528	322.773	g500-S4500	m650-U100/M4	3	205



124 Hz: 7.5 kW

Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
44.9	52.2	135	63.0	1114	63.0	2.4	102.660	3.339	g500-S400	m650-U100/L4	2	36
39.1	60.0	117	72.0	969	72.0	1.8	100.096	3.840	g500-S220	m650-U100/L4	2	33
38.3	61.2	115	73.0	949	73.0	3.1	106.301	3.920	g500-S660	m650-U100/L4	2	42
32.8	71.5	98.3	86.0	812	86.0	2.1	100.407	4.579	g500-S400	m650-U100/L4	2	36
28.5	82.3	85.4	99.0	706	99.0	1.4	99.044	5.267	g500-S220	m650-U100/L4	2	33
27.9	84.0	83.7	101	692	101	3.1	102.764	5.376	g500-S660	m650-U100/L4	2	42
27.8	84.2	83.5	101	690	101	3.2	106.748	5.391	g500-S950	m650-U100/L4	2	61
25.6	91.5	76.8	110	635	110	1.7	99.361	5.860	g500-S400	m650-U100/L4	2	36
24.8	94.3	74.5	113	616	113	3.1	105.006	6.038	g500-S950	m650-U100/L4	2	61
23.4	100	70.2	120	580	120	1.6	99.076	6.411	g500-S400	m650-U100/L4	2	36
23.4	100	70.1	120	580	120	3.1	102.981	6.417	g500-S660	m650-U100/L4	2	42
22.2	106	66.5	127	550	127	1.3	99.141	6.767	g500-S220	m650-U100/L4	2	33
21.8	108	65.4	129	541	129	2.6	100.984	6.880	g500-S660	m650-U100/L4	2	42
20.5	114	61.6	137	509	137	3.1	102.396	7.311	g500-S660	m650-U100/L4	2	42
20.1	117	60.3	140	498	140	1.9	99.679	7.467	g500-S400	m650-U100/L4	2	36
19.6	120	58.7	144	485	144	1.1	98.999	7.667	g500-S220	m650-U100/L4	2	33
19.5	120	58.4	144	483	144	2.6	102.580	7.702	g500-S950	m650-U100/L4	2	61
18.1	129	54.4	155	450	155	3.2	114.292	8.272	g500-S2100	m650-U100/L4	2	94
17.8	132	53.3	158	441	158	1.8	99.445	8.436	g500-S400	m650-U100/L4	2	36
17.0	138	51.1	165	423	165	2.9	100.999	8.800	g500-S660	m650-U100/L4	2	42
16.8	139	50.5	167	417	167	3.2	125.671	8.917	g500-S3100	m650-U100/L4	2	133
16.2	145	48.5	174	401	174	0.9	98.536	9.280	g500-S220	m650-U100/L4	2	33
15.0	157	44.9	188	371	188	2.5	100.688	10.027	g500-S660	m650-U100/L4	2	42
14.6	160	43.9	192	363	192	1.5	98.822	10.240	g500-S400	m650-U100/L4	2	36
13.4	175	40.2	210	332	210	3.2	103.549	11.200	g500-S950	m650-U100/L4	2	61
13.3	176	40.0	211	330	211	2.3	99.906	11.262	g500-S660	m650-U100/L4	2	42
13.0	181	38.9	217	322	217	1.4	98.698	11.569	g500-S400	m650-U100/L4	2	36
12.2	192	36.5	231	302	231	2.1	99.622	12.320	g500-S660	m650-U100/L4	2	42
12.0	196	35.9	235	297	235	3.0	102.456	12.544	g500-S950	m650-U100/L4	2	61
11.7	200	35.1	240	290	240	2.0	99.716	12.832	g500-S660	m650-U100/L4	2	42
11.4	205	34.3	245	284	245	1.2	98.393	13.105	g500-S400	m650-U100/L4	2	36
10.7	219	32.1	263	265	263	1.9	99.463	14.037	g500-S660	m650-U100/L4	2	42
10.7	219	32.1	263	265	263	2.7	102.178	14.037	g500-S950	m650-U100/L4	2	61
10.5	224	31.4	268	260	268	1.1	98.267	14.336	g500-S400	m650-U100/L4	2	36
10.1	231	30.4	277	251	277	1.1	98.317	14.806	g500-S400	m650-U100/L4	2	36
9.5	246	28.6	294	237	294	1.7	99.013	15.714	g500-S660	m650-U100/L4	2	42
9.4	250	28.1	300	233	300	2.3	101.012	16.000	g500-S950	m650-U100/L4	2	61
9.3	253	27.8	303	230	303	1.0	98.204	16.197	g500-S400	m650-U100/L4	2	36
8.8	266	26.4	319	219	319	3.2	109.569	17.022	g500-S2100	m650-U100/L4	2	94
8.4	280	25.1	335	208	335	1.5	98.915	17.905	g500-S660	m650-U100/L4	2	42
8.4	280	25.1	335	208	335	2.1	100.842	17.905	g500-S950	m650-U100/L4	2	61
8.2	286	24.6	342	203	342	1.0	98.031	18.286	g500-S400	m650-U100/L4	2	36
7.9	296	23.8	354	197	354	3.6	109.003	18.917	g500-S2100	m650-U100/L4	2	94
7.8	301	23.4	360	193	360	1.5	98.654	19.250	g500-S660	m650-U100/L4	2	42
7.7	306	23.0	367	190	367	2.2	100.188	19.600	g500-S950	m650-U100/L4	2	61
7.5	313	22.5	375	186	375	3.6	113.190	20.041	g500-S3100	m650-U100/L4	2	133
6.8	343	20.5	411	170	411	1.4	98.589	21.933	g500-S660	m650-U100/L4	2	42
6.8	343	20.5	411	170	411	1.9	100.074	21.933	g500-S950	m650-U100/L4	2	61
6.6	354	19.9	424	164	424	3.6	111.883	22.663	g500-S3100	m650-U100/L4	2	133
6.0	391	18.0	469	149	469	1.0	98.147	25.056	g500-S660	m650-U100/L4	2	42
5.9	399	17.6	478	146	478	1.7	99.330	25.511	g500-S950	m650-U100/L4	2	61



Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n_{22}	M_{22}	n_{21}	M_{21}	n_2	M_2	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
5.3	442	15.9	529	132	529	2.6	102.993	28.275	g500-S2100	m650-U100/L4	2	94
5.3	446	15.8	535	130	535	1.0	98.109	28.548	g500-S660	m650-U100/L4	2	42
5.3	446	15.8	535	130	535	1.5	99.263	28.548	g500-S950	m650-U100/L4	2	61
4.8	487	14.4	584	119	584	1.1	97.967	31.167	g500-S660	m650-U100/L4	2	42
4.8	488	14.4	585	119	585	1.5	98.759	31.267	g500-S950	m650-U100/L4	2	61
4.8	491	14.3	588	118	588	2.9	102.788	31.422	g500-S2100	m650-U100/L4	2	94
4.5	520	13.5	623	112	623	2.9	104.306	33.289	g500-S3100	m650-U100/L4	2	133
4.4	536	13.1	643	108	643	2.4	101.620	34.333	g500-S2100	m650-U100/L4	2	94
4.3	547	12.9	655	106	655	1.4	98.714	34.989	g500-S950	m650-U100/L4	2	61
4.2	555	12.7	665	105	665	0.9	97.942	35.511	g500-S660	m650-U100/L4	2	42
4.0	588	12.0	705	98.8	705	2.9	103.832	37.644	g500-S3100	m650-U100/L4	2	133
3.9	596	11.8	714	97.5	714	2.4	101.481	38.156	g500-S2100	m650-U100/L4	2	94
3.7	616	11.2	739	92.9	739	1.9	102.282	40.056	g500-S2100	m650-U100/L4	3	94
3.7	631	11.1	757	92.0	757	2.4	102.510	40.422	g500-S3100	m650-U100/L4	2	133
3.7	642	11.0	769	90.6	769	1.2	98.287	41.067	g500-S950	m650-U100/L4	2	61
3.6	657	10.7	787	88.5	787	2.4	106.466	42.044	g500-S4500	m650-U100/L4	2	206
3.4	685	10.1	821	83.6	821	1.8	102.179	44.515	g500-S2100	m650-U100/L4	3	94
3.4	694	10.1	832	83.7	832	2.0	100.119	44.431	g500-S2100	m650-U100/L4	2	94
3.3	714	9.8	856	81.4	856	2.4	102.189	45.711	g500-S3100	m650-U100/L4	2	133
3.3	718	9.8	861	80.9	861	1.0	98.261	45.956	g500-S950	m650-U100/L4	2	61
3.2	726	9.5	870	78.9	870	2.5	103.019	47.159	g500-S3100	m650-U100/L4	3	134
3.2	733	9.6	879	79.3	879	2.4	106.086	46.933	g500-S4500	m650-U100/L4	2	206
3.0	771	9.1	925	75.3	925	2.0	100.036	49.378	g500-S2100	m650-U100/L4	2	94
3.0	779	9.0	933	74.6	933	0.9	98.078	49.840	g500-S950	m650-U100/L4	2	61
2.9	797	8.8	955	72.9	955	2.0	104.005	51.027	g500-S4500	m650-U100/L4	2	206
2.9	817	8.6	980	71.1	980	2.0	100.651	52.311	g500-S3100	m650-U100/L4	2	133
2.8	821	8.4	984	69.8	984	2.6	102.783	53.330	g500-S3100	m650-U100/L4	3	134
2.8	842	8.3	1010	69.0	1010	1.6	99.411	53.924	g500-S2100	m650-U100/L4	2	94
2.7	845	8.2	1013	67.7	1013	1.7	100.627	54.933	g500-S2100	m650-U100/L4	3	94
2.6	890	7.9	1067	65.3	1067	2.0	103.747	56.960	g500-S4500	m650-U100/L4	2	206
2.5	924	7.6	1108	62.9	1108	2.0	100.459	59.156	g500-S3100	m650-U100/L4	2	133
2.5	936	7.5	1122	62.1	1122	1.6	99.354	59.927	g500-S2100	m650-U100/L4	2	94
2.5	939	7.4	1126	60.9	1126	1.5	100.572	61.049	g500-S2100	m650-U100/L4	3	94
2.4	992	7.1	1189	58.6	1189	1.6	99.772	63.487	g500-S3100	m650-U100/L4	2	133
2.3	995	7.0	1193	57.5	1193	2.2	101.019	64.676	g500-S3100	m650-U100/L4	3	134
2.3	1000	6.9	1198	57.3	1198	3.2	104.702	64.978	g500-S4500	m650-U100/L4	3	209
2.3	1008	7.0	1208	57.7	1208	1.6	101.748	64.500	g500-S4500	m650-U100/L4	2	206
2.2	1065	6.6	1276	54.6	1276	1.1	98.759	68.162	g500-S2100	m650-U100/L4	2	94
2.1	1082	6.4	1297	52.9	1297	1.5	99.679	70.302	g500-S2100	m650-U100/L4	3	94
2.1	1116	6.2	1338	51.3	1338	3.1	104.543	72.533	g500-S4500	m650-U100/L4	3	209
2.1	1120	6.2	1342	51.1	1342	3.1	103.375	72.775	g500-S4500	m650-U100/L4	3	209
2.1	1122	6.3	1344	51.8	1344	1.6	99.641	71.793	g500-S3100	m650-U100/L4	2	133
2.1	1125	6.3	1348	51.7	1348	1.6	101.587	72.000	g500-S4500	m650-U100/L4	2	206
2.1	1125	6.2	1349	50.9	1349	2.1	100.894	73.138	g500-S3100	m650-U100/L4	3	134
2.0	1183	5.9	1418	49.1	1418	1.0	98.724	75.750	g500-S2100	m650-U100/L4	2	94
2.0	1183	5.9	1419	48.4	1419	1.4	99.432	76.907	g500-S2100	m650-U100/L4	3	94
1.9	1202	5.8	1441	47.6	1441	1.3	99.646	78.128	g500-S2100	m650-U100/L4	3	94
1.8	1250	5.5	1498	45.8	1498	2.8	103.249	81.237	g500-S4500	m650-U100/L4	3	209
1.8	1274	5.4	1527	44.9	1527	1.9	99.918	82.769	g500-S3100	m650-U100/L4	3	134
1.8	1315	5.3	1576	43.5	1576	1.2	99.404	85.468	g500-S2100	m650-U100/L4	3	94
1.7	1393	5.0	1670	41.1	1670	1.7	99.632	90.546	g500-S3100	m650-U100/L4	3	134
1.6	1428	4.8	1712	40.1	1712	2.5	101.577	92.825	g500-S4500	m650-U100/L4	3	209



Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n_{22}	M_{22}	n_{21}	M_2	n_2	M_2	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
1.6	1440	4.8	1726	39.7	1726	1.7	99.842	93.599	g500-S3100	m650-U100/L4	3	134
1.5	1509	4.6	1809	37.9	1809	1.1	98.896	98.095	g500-S2100	m650-U100/L4	3	94
1.5	1575	4.4	1889	36.3	1889	1.5	99.568	102.393	g500-S3100	m650-U100/L4	3	134
1.4	1594	4.3	1911	35.9	1911	2.2	101.499	103.619	g500-S4500	m650-U100/L4	3	209
1.4	1677	4.1	2011	34.1	2011	1.0	98.879	109.016	g500-S2100	m650-U100/L4	3	94
1.3	1750	4.0	2097	32.7	2097	2.0	100.564	113.711	g500-S4500	m650-U100/L4	3	209
1.3	1777	3.9	2130	32.2	2130	1.4	99.019	115.492	g500-S3100	m650-U100/L4	3	134
1.2	1953	3.5	2341	29.3	2341	1.8	100.512	126.933	g500-S4500	m650-U100/L4	3	209
1.1	2010	3.4	2409	28.5	2409	1.2	98.980	130.603	g500-S3100	m650-U100/L4	3	134
1.1	2177	3.2	2609	26.3	2609	1.1	98.658	141.478	g500-S3100	m650-U100/L4	3	134
1.0	2277	3.0	2730	25.1	2730	1.5	99.552	148.005	g500-S4500	m650-U100/L4	3	209
0.9	2462	2.8	2951	23.3	2951	1.0	98.632	159.989	g500-S3100	m650-U100/L4	3	134
0.9	2542	2.7	3047	22.5	3047	1.4	99.522	165.215	g500-S4500	m650-U100/L4	3	209
0.8	2791	2.5	3346	20.5	3346	1.3	98.907	181.396	g500-S4500	m650-U100/L4	3	209
0.7	3116	2.2	3735	18.4	3735	1.1	98.886	202.489	g500-S4500	m650-U100/L4	3	209
0.6	3666	1.9	4394	15.6	4394	1.0	98.373	238.252	g500-S4500	m650-U100/L4	3	209



124 Hz: 11 kW

Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz							z	m
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i				
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
44.9	80.0	240	91.0	1114	91.0	1.6	156.960	3.339	g500-S400	m650-U112/M4	2	43
38.3	93.9	204	107	949	107	2.4	160.601	3.920	g500-S660	m650-U112/M4	2	48
34.2	105	183	120	849	120	2.9	164.917	4.380	g500-S950	m650-U112/M4	2	67
32.8	110	175	125	812	125	1.4	154.707	4.579	g500-S400	m650-U112/M4	2	43
27.9	129	149	147	692	147	2.4	157.064	5.376	g500-S660	m650-U112/M4	2	48
27.8	129	148	148	690	148	2.5	161.048	5.391	g500-S950	m650-U112/M4	2	67
25.6	140	137	160	635	160	1.2	153.661	5.860	g500-S400	m650-U112/M4	2	43
24.9	145	133	165	617	165	3.3	181.032	6.029	g500-S2100	m650-U112/M4	2	100
24.8	145	133	165	616	165	2.4	159.306	6.038	g500-S950	m650-U112/M4	2	67
23.4	154	125	175	580	175	1.1	153.376	6.411	g500-S400	m650-U112/M4	2	43
23.4	154	125	176	580	176	2.4	157.281	6.417	g500-S660	m650-U112/M4	2	48
23.1	156	123	178	572	178	3.3	202.453	6.499	g500-S3100	m650-U112/M4	2	139
21.8	165	116	188	542	188	3.0	174.362	6.870	g500-S2100	m650-U112/M4	2	100
21.8	165	116	188	541	188	2.0	155.284	6.880	g500-S660	m650-U112/M4	2	48
20.5	175	109	200	509	200	2.2	156.696	7.311	g500-S660	m650-U112/M4	2	48
20.3	178	108	203	502	203	3.0	190.859	7.406	g500-S3100	m650-U112/M4	2	139
20.1	179	107	204	498	204	1.3	153.979	7.467	g500-S400	m650-U112/M4	2	43
19.5	185	104	211	483	211	1.8	156.880	7.702	g500-S950	m650-U112/M4	2	67
18.1	198	96.7	226	450	226	2.6	168.592	8.272	g500-S2100	m650-U112/M4	2	100
17.8	202	94.8	231	441	231	1.2	153.745	8.436	g500-S400	m650-U112/M4	2	43
17.0	211	90.9	241	423	241	2.0	155.299	8.800	g500-S660	m650-U112/M4	2	48
16.8	214	89.7	244	417	244	2.6	179.971	8.917	g500-S3100	m650-U112/M4	2	139
16.5	218	87.9	249	409	249	2.8	160.072	9.100	g500-S950	m650-U112/M4	2	67
15.0	240	79.8	274	371	274	1.7	154.988	10.027	g500-S660	m650-U112/M4	2	48
14.7	244	78.6	279	365	279	2.5	159.544	10.183	g500-S950	m650-U112/M4	2	67
14.6	245	78.1	280	363	280	1.1	153.122	10.240	g500-S400	m650-U112/M4	2	43
13.7	262	73.2	299	340	299	2.3	171.682	10.932	g500-S3100	m650-U112/M4	2	139
13.4	268	71.4	306	332	306	2.3	157.849	11.200	g500-S950	m650-U112/M4	2	67
13.3	270	71.0	308	330	308	1.6	154.206	11.262	g500-S660	m650-U112/M4	2	48
13.0	277	69.1	317	322	317	0.9	152.998	11.569	g500-S400	m650-U112/M4	2	43
12.2	295	64.9	337	302	337	1.5	153.922	12.320	g500-S660	m650-U112/M4	2	48
12.1	297	64.5	339	300	339	3.3	172.140	12.406	g500-S2100	m650-U112/M4	2	100
12.0	301	63.8	343	297	343	2.0	156.756	12.544	g500-S950	m650-U112/M4	2	67
11.7	308	62.3	351	290	351	1.4	154.016	12.832	g500-S660	m650-U112/M4	2	48
10.9	330	58.0	377	270	377	3.3	171.074	13.787	g500-S2100	m650-U112/M4	2	100
10.7	336	57.0	384	265	384	1.3	153.763	14.037	g500-S660	m650-U112/M4	2	48
10.7	336	57.0	384	265	384	1.8	156.478	14.037	g500-S950	m650-U112/M4	2	67
10.6	339	56.6	387	263	387	3.0	167.515	14.137	g500-S2100	m650-U112/M4	2	100
10.3	350	54.8	400	255	400	3.3	178.957	14.606	g500-S3100	m650-U112/M4	2	139
9.5	377	50.9	430	237	430	3.0	166.694	15.711	g500-S2100	m650-U112/M4	2	100
9.5	377	50.9	430	237	430	1.1	153.313	15.714	g500-S660	m650-U112/M4	2	48
9.4	383	50.0	438	233	438	1.6	155.312	16.000	g500-S950	m650-U112/M4	2	67
9.2	393	48.8	448	227	448	3.3	193.058	16.381	g500-S4500	m650-U112/M4	2	212
9.1	396	48.4	452	225	452	3.3	176.496	16.517	g500-S3100	m650-U112/M4	2	139
9.0	399	48.1	455	224	455	3.0	172.765	16.644	g500-S3100	m650-U112/M4	2	139
8.8	408	47.0	466	219	466	2.6	163.869	17.022	g500-S2100	m650-U112/M4	2	100
8.4	429	44.7	490	208	490	1.0	153.215	17.905	g500-S660	m650-U112/M4	2	48
8.4	429	44.7	490	208	490	1.4	155.142	17.905	g500-S950	m650-U112/M4	2	67
8.2	438	43.8	500	203	500	3.7	190.554	18.286	g500-S4500	m650-U112/M4	2	212
8.0	451	42.5	515	198	515	3.4	170.870	18.822	g500-S3100	m650-U112/M4	2	139
7.9	453	42.3	518	197	518	3.0	163.303	18.917	g500-S2100	m650-U112/M4	2	100



Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
7.8	461	41.6	527	193	527	1.1	152.954	19.250	g500-S660	m650-U112/M4	2	48
7.7	470	40.8	536	190	536	1.5	154.488	19.600	g500-S950	m650-U112/M4	2	67
7.5	480	39.9	548	186	548	3.0	167.490	20.041	g500-S3100	m650-U112/M4	2	139
7.2	500	38.3	571	178	571	2.6	160.969	20.869	g500-S2100	m650-U112/M4	2	100
6.8	526	36.5	600	170	600	0.9	152.889	21.933	g500-S660	m650-U112/M4	2	48
6.8	526	36.5	600	170	600	1.3	154.374	21.933	g500-S950	m650-U112/M4	2	67
6.6	543	35.3	620	164	620	3.0	166.183	22.663	g500-S3100	m650-U112/M4	2	139
6.5	556	34.5	635	160	635	2.6	160.592	23.193	g500-S2100	m650-U112/M4	2	100
6.1	589	32.6	672	151	672	2.6	163.378	24.570	g500-S3100	m650-U112/M4	2	139
5.9	611	31.4	698	146	698	1.1	153.630	25.511	g500-S950	m650-U112/M4	2	67
5.7	634	30.3	723	141	723	2.5	171.202	26.437	g500-S4500	m650-U112/M4	2	212
5.4	666	28.8	760	134	760	2.6	162.508	27.785	g500-S3100	m650-U112/M4	2	139
5.3	678	28.3	774	132	774	2.0	157.293	28.275	g500-S2100	m650-U112/M4	2	100
5.3	684	28.0	781	130	781	1.0	153.563	28.548	g500-S950	m650-U112/M4	2	67
5.1	707	27.1	807	126	807	2.5	170.241	29.511	g500-S4500	m650-U112/M4	2	212
4.8	749	25.6	855	119	855	1.0	153.059	31.267	g500-S950	m650-U112/M4	2	67
4.8	753	25.5	860	118	860	2.2	157.088	31.422	g500-S2100	m650-U112/M4	2	100
4.6	779	24.6	889	115	889	2.4	165.932	32.489	g500-S4500	m650-U112/M4	2	212
4.5	798	24.0	911	112	911	2.2	158.606	33.289	g500-S3100	m650-U112/M4	2	139
4.4	823	23.3	939	108	939	1.9	155.920	34.333	g500-S2100	m650-U112/M4	2	100
4.3	839	22.9	957	106	957	0.9	153.014	34.989	g500-S950	m650-U112/M4	2	67
4.1	869	22.1	992	103	992	2.4	165.295	36.267	g500-S4500	m650-U112/M4	2	212
3.9	899	21.0	1027	97.7	1027	2.9	168.265	38.090	g500-S4500	m650-U112/M4	3	215
4.0	902	21.3	1030	98.8	1030	2.2	158.132	37.644	g500-S3100	m650-U112/M4	2	139
3.9	914	21.0	1044	97.5	1044	1.8	155.781	38.156	g500-S2100	m650-U112/M4	2	100
3.7	946	20.0	1079	92.9	1079	1.3	156.582	40.056	g500-S2100	m650-U112/M4	3	100
3.7	969	19.8	1106	92.0	1106	1.9	156.810	40.422	g500-S3100	m650-U112/M4	2	139
3.5	1004	18.8	1146	87.5	1146	2.8	167.802	42.520	g500-S4500	m650-U112/M4	3	215
3.6	1008	19.0	1150	88.5	1150	1.9	160.766	42.044	g500-S4500	m650-U112/M4	2	212
3.4	1051	18.0	1200	83.6	1200	1.3	156.479	44.515	g500-S2100	m650-U112/M4	3	100
3.4	1065	18.0	1216	83.7	1216	1.5	154.419	44.431	g500-S2100	m650-U112/M4	2	100
3.3	1095	17.5	1251	81.4	1251	1.9	156.489	45.711	g500-S3100	m650-U112/M4	2	139
3.2	1113	17.0	1271	78.9	1271	1.7	157.319	47.159	g500-S3100	m650-U112/M4	3	140
3.2	1125	17.0	1284	79.3	1284	1.9	160.386	46.933	g500-S4500	m650-U112/M4	2	212
3.0	1183	16.2	1351	75.3	1351	1.4	154.336	49.378	g500-S2100	m650-U112/M4	2	100
2.9	1223	15.7	1396	72.9	1396	1.6	158.305	51.027	g500-S4500	m650-U112/M4	2	212
2.8	1246	15.2	1423	70.5	1423	2.7	161.818	52.794	g500-S4500	m650-U112/M4	3	215
2.9	1254	15.3	1431	71.1	1431	1.5	154.951	52.311	g500-S3100	m650-U112/M4	2	139
2.8	1259	15.0	1437	69.8	1437	1.8	157.083	53.330	g500-S3100	m650-U112/M4	3	140
2.8	1292	14.8	1475	69.0	1475	1.2	153.711	53.924	g500-S2100	m650-U112/M4	2	100
2.7	1297	14.6	1480	67.7	1480	1.2	154.927	54.933	g500-S2100	m650-U112/M4	3	100
2.6	1365	14.0	1558	65.3	1558	1.6	158.047	56.960	g500-S4500	m650-U112/M4	2	212
2.5	1391	13.6	1588	63.1	1588	2.4	161.577	58.933	g500-S4500	m650-U112/M4	3	215
2.5	1418	13.5	1619	62.9	1619	1.5	154.759	59.156	g500-S3100	m650-U112/M4	2	139
2.5	1436	13.3	1640	62.1	1640	1.2	153.654	59.927	g500-S2100	m650-U112/M4	2	100
2.5	1441	13.1	1645	60.9	1645	1.1	154.872	61.049	g500-S2100	m650-U112/M4	3	100
2.4	1521	12.6	1737	58.6	1737	1.2	154.072	63.487	g500-S3100	m650-U112/M4	2	139
2.3	1527	12.4	1743	57.5	1743	1.5	155.319	64.676	g500-S3100	m650-U112/M4	3	140
2.3	1534	12.3	1751	57.3	1751	2.2	159.002	64.978	g500-S4500	m650-U112/M4	3	215
2.3	1546	12.4	1765	57.7	1765	1.3	156.048	64.500	g500-S4500	m650-U112/M4	2	212
2.1	1660	11.4	1895	52.9	1895	1.0	153.979	70.302	g500-S2100	m650-U112/M4	3	100
2.1	1712	11.0	1955	51.3	1955	2.1	158.843	72.533	g500-S4500	m650-U112/M4	3	215



Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz							z	m
n_{22}	M_{22}	n_{21}	M_2	n_2	M_2	c	J	i				
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
2.1	1718	11.0	1961	51.1	1961	2.1	157.675	72.775	g500-S4500	m650-U112/M4	3	215
2.1	1721	11.1	1964	51.8	1964	1.1	153.941	71.793	g500-S3100	m650-U112/M4	2	139
2.1	1725	11.1	1970	51.7	1970	1.2	155.887	72.000	g500-S4500	m650-U112/M4	2	212
2.1	1726	10.9	1971	50.9	1971	1.5	155.194	73.138	g500-S3100	m650-U112/M4	3	140
2.0	1815	10.4	2073	48.4	2073	0.9	153.732	76.907	g500-S2100	m650-U112/M4	3	100
1.9	1844	10.2	2106	47.6	2106	0.9	153.946	78.128	g500-S2100	m650-U112/M4	3	100
1.8	1918	9.8	2189	45.8	2189	1.9	157.549	81.237	g500-S4500	m650-U112/M4	3	215
1.8	1954	9.7	2231	44.9	2231	1.3	154.218	82.769	g500-S3100	m650-U112/M4	3	140
1.7	2137	8.8	2440	41.1	2440	1.2	153.932	90.546	g500-S3100	m650-U112/M4	3	140
1.6	2191	8.6	2502	40.1	2502	1.7	155.877	92.825	g500-S4500	m650-U112/M4	3	215
1.6	2209	8.5	2522	39.7	2522	1.1	154.142	93.599	g500-S3100	m650-U112/M4	3	140
1.5	2417	7.8	2759	36.3	2759	1.1	153.868	102.393	g500-S3100	m650-U112/M4	3	140
1.4	2446	7.7	2793	35.9	2793	1.5	155.799	103.619	g500-S4500	m650-U112/M4	3	215
1.3	2684	7.0	3065	32.7	3065	1.4	154.864	113.711	g500-S4500	m650-U112/M4	3	215
1.3	2726	6.9	3113	32.2	3113	0.9	153.319	115.492	g500-S3100	m650-U112/M4	3	140
1.2	2996	6.3	3421	29.3	3421	1.2	154.812	126.933	g500-S4500	m650-U112/M4	3	215
1.0	3494	5.4	3989	25.1	3989	1.1	153.852	148.005	g500-S4500	m650-U112/M4	3	215
0.9	3900	4.8	4453	22.5	4453	0.9	153.822	165.215	g500-S4500	m650-U112/M4	3	215



124 Hz: 15 kW

Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz							z	m
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i				
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
38.3	132	115	146	949	146	2.1	329.201	3.920	g500-S660	m650-U132/S4	2	67
34.2	147	103	164	849	164	2.8	333.517	4.380	g500-S950	m650-U132/S4	2	86
32.7	154	98.0	172	810	172	4.8	365.951	4.593	g500-S2100	m650-U132/S4	2	119
30.3	166	90.9	185	751	185	4.8	402.858	4.951	g500-S3100	m650-U132/S4	2	158
27.9	181	83.7	201	692	201	1.8	325.664	5.376	g500-S660	m650-U132/S4	2	67
27.8	181	83.5	201	690	201	2.5	329.648	5.391	g500-S950	m650-U132/S4	2	86
24.9	202	74.6	225	617	225	4.5	349.632	6.029	g500-S2100	m650-U132/S4	2	119
24.8	203	74.5	226	616	226	2.4	327.906	6.038	g500-S950	m650-U132/S4	2	86
23.4	215	70.1	240	580	240	1.9	325.881	6.417	g500-S660	m650-U132/S4	2	67
23.1	218	69.2	243	572	243	4.5	371.053	6.499	g500-S3100	m650-U132/S4	2	158
21.8	231	65.5	257	542	257	4.3	342.962	6.870	g500-S2100	m650-U132/S4	2	119
21.8	231	65.4	257	541	257	1.4	323.884	6.880	g500-S660	m650-U132/S4	2	67
21.3	237	63.8	264	527	264	4.8	406.366	7.056	g500-S4500	m650-U132/S4	2	231
20.5	245	61.6	273	509	273	1.6	325.296	7.311	g500-S660	m650-U132/S4	2	67
20.3	249	60.8	277	502	277	4.5	359.459	7.406	g500-S3100	m650-U132/S4	2	158
19.5	259	58.4	288	483	288	2.0	325.480	7.702	g500-S950	m650-U132/S4	2	86
18.1	278	54.4	309	450	309	3.6	337.192	8.272	g500-S2100	m650-U132/S4	2	119
17.0	295	51.1	329	423	329	1.4	323.899	8.800	g500-S660	m650-U132/S4	2	67
16.8	299	50.5	333	417	333	4.1	348.571	8.917	g500-S3100	m650-U132/S4	2	158
16.5	306	49.5	340	409	340	2.1	328.672	9.100	g500-S950	m650-U132/S4	2	86
15.9	317	47.6	353	394	353	3.9	350.632	9.452	g500-S2100	m650-U132/S4	2	119
15.0	337	44.9	375	371	375	1.2	323.588	10.027	g500-S660	m650-U132/S4	2	67
14.7	342	44.2	380	365	380	1.9	328.144	10.183	g500-S950	m650-U132/S4	2	86
14.3	353	42.8	392	354	392	3.5	348.796	10.504	g500-S2100	m650-U132/S4	2	119
13.7	367	41.2	408	340	408	3.5	340.282	10.932	g500-S3100	m650-U132/S4	2	158
13.5	374	40.4	416	334	416	4.8	362.377	11.128	g500-S3100	m650-U132/S4	2	158
13.4	376	40.2	418	332	418	1.7	326.449	11.200	g500-S950	m650-U132/S4	2	86
13.3	378	40.0	421	330	421	1.2	322.806	11.262	g500-S660	m650-U132/S4	2	67
12.2	414	36.5	460	302	460	1.1	322.522	12.320	g500-S660	m650-U132/S4	2	67
12.1	417	36.3	463	300	463	3.2	340.740	12.406	g500-S2100	m650-U132/S4	2	119
12.0	421	35.9	469	297	469	1.5	325.356	12.544	g500-S950	m650-U132/S4	2	86
11.9	422	35.8	470	296	470	4.7	358.137	12.584	g500-S3100	m650-U132/S4	2	158
11.7	431	35.1	479	290	479	1.0	322.616	12.832	g500-S660	m650-U132/S4	2	67
11.7	431	35.0	480	290	480	4.8	379.905	12.843	g500-S4500	m650-U132/S4	2	231
10.9	463	32.6	515	270	515	2.9	339.674	13.787	g500-S2100	m650-U132/S4	2	119
10.7	471	32.1	524	265	524	0.9	322.363	14.037	g500-S660	m650-U132/S4	2	67
10.7	471	32.1	524	265	524	1.3	325.078	14.037	g500-S950	m650-U132/S4	2	86
10.6	475	31.8	528	263	528	2.9	336.115	14.137	g500-S2100	m650-U132/S4	2	119
10.5	481	31.4	536	260	536	4.8	375.833	14.336	g500-S4500	m650-U132/S4	2	231
10.3	490	30.8	546	255	546	4.2	347.557	14.606	g500-S3100	m650-U132/S4	2	158
9.5	527	28.6	587	237	587	2.6	335.294	15.711	g500-S2100	m650-U132/S4	2	119
9.4	537	28.1	598	233	598	1.2	323.912	16.000	g500-S950	m650-U132/S4	2	86
9.2	550	27.5	612	227	612	4.5	361.658	16.381	g500-S4500	m650-U132/S4	2	231
9.1	555	27.2	617	225	617	3.7	345.096	16.517	g500-S3100	m650-U132/S4	2	158
9.0	559	27.0	622	224	622	3.7	341.365	16.644	g500-S3100	m650-U132/S4	2	158
8.8	571	26.4	636	219	636	2.4	332.469	17.022	g500-S2100	m650-U132/S4	2	119
8.4	601	25.1	669	208	669	1.1	323.742	17.905	g500-S950	m650-U132/S4	2	86
8.0	632	23.9	703	198	703	3.7	339.470	18.822	g500-S3100	m650-U132/S4	2	158
7.9	635	23.8	707	197	707	2.4	331.903	18.917	g500-S2100	m650-U132/S4	2	119
7.7	658	23.0	732	190	732	1.1	323.088	19.600	g500-S950	m650-U132/S4	2	86
7.5	673	22.5	749	186	749	3.5	336.090	20.041	g500-S3100	m650-U132/S4	2	158



Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n_{22}	M_{22}	n_{21}	M_2	n_2	M_2	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
7.5	674	22.4	750	185	750	4.4	351.227	20.067	g500-S4500	m650-U132/S4	2	231
7.2	701	21.6	780	178	780	2.2	329.569	20.869	g500-S2100	m650-U132/S4	2	119
6.8	736	20.5	819	170	819	1.0	322.974	21.933	g500-S950	m650-U132/S4	2	86
6.7	752	20.1	837	166	837	4.4	349.559	22.400	g500-S4500	m650-U132/S4	2	231
6.6	761	19.9	847	164	847	3.1	334.783	22.663	g500-S3100	m650-U132/S4	2	158
6.5	779	19.4	866	160	866	2.0	329.192	23.193	g500-S2100	m650-U132/S4	2	119
6.1	825	18.3	918	151	918	2.8	331.978	24.570	g500-S3100	m650-U132/S4	2	158
5.7	888	17.0	988	141	988	3.8	339.802	26.437	g500-S4500	m650-U132/S4	2	231
5.4	933	16.2	1038	134	1038	2.5	331.108	27.785	g500-S3100	m650-U132/S4	2	158
5.3	949	15.9	1056	132	1056	1.6	325.893	28.275	g500-S2100	m650-U132/S4	2	119
5.1	991	15.2	1102	126	1102	3.4	338.841	29.511	g500-S4500	m650-U132/S4	2	231
4.8	1055	14.3	1174	118	1174	1.6	325.688	31.422	g500-S2100	m650-U132/S4	2	119
4.6	1091	13.9	1214	115	1214	3.5	334.532	32.489	g500-S4500	m650-U132/S4	2	231
4.5	1118	13.5	1243	112	1243	2.3	327.206	33.289	g500-S3100	m650-U132/S4	2	158
4.4	1153	13.1	1282	108	1282	1.5	324.520	34.333	g500-S2100	m650-U132/S4	2	119
4.1	1218	12.4	1355	103	1355	3.1	333.895	36.267	g500-S4500	m650-U132/S4	2	231
3.9	1260	11.8	1401	97.7	1401	2.2	336.865	38.090	g500-S4500	m650-U132/S4	3	234
4.0	1264	12.0	1406	98.8	1406	2.1	326.732	37.644	g500-S3100	m650-U132/S4	2	158
3.9	1281	11.8	1425	97.5	1425	1.3	324.381	38.156	g500-S2100	m650-U132/S4	2	119
3.7	1325	11.2	1474	92.9	1474	1.0	325.182	40.056	g500-S2100	m650-U132/S4	3	119
3.7	1357	11.1	1510	92.0	1510	1.9	325.410	40.422	g500-S3100	m650-U132/S4	2	158
3.5	1406	10.6	1564	87.5	1564	2.0	336.402	42.520	g500-S4500	m650-U132/S4	3	234
3.6	1411	10.7	1571	88.5	1571	2.4	329.366	42.044	g500-S4500	m650-U132/S4	2	231
3.4	1472	10.1	1638	83.6	1638	0.9	325.079	44.515	g500-S2100	m650-U132/S4	3	119
3.3	1535	9.8	1707	81.4	1707	1.7	325.089	45.711	g500-S3100	m650-U132/S4	2	158
3.2	1559	9.5	1735	78.9	1735	1.3	325.919	47.159	g500-S3100	m650-U132/S4	3	159
3.2	1576	9.6	1753	79.3	1753	2.3	328.986	46.933	g500-S4500	m650-U132/S4	2	231
2.9	1713	8.8	1906	72.9	1906	1.8	326.905	51.027	g500-S4500	m650-U132/S4	2	231
2.8	1746	8.5	1942	70.5	1942	1.9	330.418	52.794	g500-S4500	m650-U132/S4	3	234
2.8	1763	8.4	1962	69.8	1962	1.3	325.683	53.330	g500-S3100	m650-U132/S4	3	159
2.6	1912	7.9	2128	65.3	2128	1.7	326.647	56.960	g500-S4500	m650-U132/S4	2	231
2.5	1949	7.6	2168	63.1	2168	1.7	330.177	58.933	g500-S4500	m650-U132/S4	3	234
2.3	2139	7.0	2380	57.5	2380	1.1	323.919	64.676	g500-S3100	m650-U132/S4	3	159
2.3	2149	6.9	2391	57.3	2391	1.6	327.602	64.978	g500-S4500	m650-U132/S4	3	234
2.1	2398	6.2	2669	51.3	2669	1.6	327.443	72.533	g500-S4500	m650-U132/S4	3	234
2.1	2406	6.2	2678	51.1	2678	1.6	326.275	72.775	g500-S4500	m650-U132/S4	3	234
2.1	2418	6.2	2691	50.9	2691	1.1	323.794	73.138	g500-S3100	m650-U132/S4	3	159
1.8	2686	5.5	2989	45.8	2989	1.4	326.149	81.237	g500-S4500	m650-U132/S4	3	234
1.8	2737	5.4	3045	44.9	3045	1.0	322.818	82.769	g500-S3100	m650-U132/S4	3	159
1.6	3069	4.8	3415	40.1	3415	1.2	324.477	92.825	g500-S4500	m650-U132/S4	3	234
1.4	3426	4.3	3812	35.9	3812	1.1	324.399	103.619	g500-S4500	m650-U132/S4	3	234
1.3	3760	4.0	4184	32.7	4184	1.0	323.464	113.711	g500-S4500	m650-U132/S4	3	234



124 Hz: 18.5 kW

Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz							z	m
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i				
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
38.3	162	115	181	949	181	1.7	425.001	3.920	g500-S660	m650-U132/M4	2	77
34.2	182	103	202	849	202	2.3	429.317	4.380	g500-S950	m650-U132/M4	2	96
32.7	190	98.0	212	810	212	3.9	461.751	4.593	g500-S2100	m650-U132/M4	2	129
30.3	205	90.9	228	751	228	3.9	498.658	4.951	g500-S3100	m650-U132/M4	2	168
27.9	223	83.7	248	692	248	1.5	421.464	5.376	g500-S660	m650-U132/M4	2	77
27.8	223	83.5	248	690	248	2.1	425.448	5.391	g500-S950	m650-U132/M4	2	96
24.9	250	74.6	278	617	278	3.6	445.432	6.029	g500-S2100	m650-U132/M4	2	129
24.8	250	74.5	278	616	278	1.9	423.706	6.038	g500-S950	m650-U132/M4	2	96
23.4	266	70.1	296	580	296	1.5	421.681	6.417	g500-S660	m650-U132/M4	2	77
23.1	269	69.2	300	572	300	3.6	466.853	6.499	g500-S3100	m650-U132/M4	2	168
21.8	285	65.5	317	542	317	3.5	438.762	6.870	g500-S2100	m650-U132/M4	2	129
21.8	285	65.4	317	541	317	1.2	419.684	6.880	g500-S660	m650-U132/M4	2	77
21.3	292	63.8	325	527	325	3.9	502.166	7.056	g500-S4500	m650-U132/M4	2	241
20.5	303	61.6	337	509	337	1.3	421.096	7.311	g500-S660	m650-U132/M4	2	77
20.3	307	60.8	341	502	341	3.6	455.259	7.406	g500-S3100	m650-U132/M4	2	168
19.5	319	58.4	355	483	355	1.6	421.280	7.702	g500-S950	m650-U132/M4	2	96
18.1	343	54.4	381	450	381	2.9	432.992	8.272	g500-S2100	m650-U132/M4	2	129
17.0	365	51.1	406	423	406	1.2	419.699	8.800	g500-S660	m650-U132/M4	2	77
16.8	369	50.5	411	417	411	3.3	444.371	8.917	g500-S3100	m650-U132/M4	2	168
16.5	377	49.5	419	409	419	1.7	424.472	9.100	g500-S950	m650-U132/M4	2	96
15.9	392	47.6	436	394	436	3.2	446.432	9.452	g500-S2100	m650-U132/M4	2	129
15.0	415	44.9	462	371	462	1.0	419.388	10.027	g500-S660	m650-U132/M4	2	77
14.7	422	44.2	469	365	469	1.5	423.944	10.183	g500-S950	m650-U132/M4	2	96
14.3	435	42.8	484	354	484	2.9	444.596	10.504	g500-S2100	m650-U132/M4	2	129
13.7	453	41.2	504	340	504	2.8	436.082	10.932	g500-S3100	m650-U132/M4	2	168
13.5	461	40.4	513	334	513	3.9	458.177	11.128	g500-S3100	m650-U132/M4	2	168
13.4	464	40.2	516	332	516	1.4	422.249	11.200	g500-S950	m650-U132/M4	2	96
13.3	467	40.0	519	330	519	0.9	418.606	11.262	g500-S660	m650-U132/M4	2	77
12.1	514	36.3	572	300	572	2.6	436.540	12.406	g500-S2100	m650-U132/M4	2	129
12.0	520	35.9	578	297	578	1.2	421.156	12.544	g500-S950	m650-U132/M4	2	96
11.9	521	35.8	580	296	580	3.8	453.937	12.584	g500-S3100	m650-U132/M4	2	168
11.7	532	35.0	592	290	592	3.9	475.705	12.843	g500-S4500	m650-U132/M4	2	241
10.9	571	32.6	635	270	635	2.4	435.474	13.787	g500-S2100	m650-U132/M4	2	129
10.7	582	32.1	647	265	647	1.1	420.878	14.037	g500-S950	m650-U132/M4	2	96
10.6	586	31.8	652	263	652	2.3	431.915	14.137	g500-S2100	m650-U132/M4	2	129
10.5	594	31.4	661	260	661	3.9	471.633	14.336	g500-S4500	m650-U132/M4	2	241
10.3	605	30.8	673	255	673	3.4	443.357	14.606	g500-S3100	m650-U132/M4	2	168
9.5	651	28.6	724	237	724	2.1	431.094	15.711	g500-S2100	m650-U132/M4	2	129
9.4	663	28.1	737	233	737	1.0	419.712	16.000	g500-S950	m650-U132/M4	2	96
9.2	679	27.5	755	227	755	3.6	457.458	16.381	g500-S4500	m650-U132/M4	2	241
9.1	684	27.2	761	225	761	3.0	440.896	16.517	g500-S3100	m650-U132/M4	2	168
9.0	690	27.0	767	224	767	3.0	437.165	16.644	g500-S3100	m650-U132/M4	2	168
8.8	705	26.4	784	219	784	1.9	428.269	17.022	g500-S2100	m650-U132/M4	2	129
8.2	758	24.6	843	203	843	4.1	454.954	18.286	g500-S4500	m650-U132/M4	2	241
8.0	780	23.9	867	198	867	3.0	435.270	18.822	g500-S3100	m650-U132/M4	2	168
7.9	784	23.8	872	197	872	2.0	427.703	18.917	g500-S2100	m650-U132/M4	2	129
7.5	830	22.5	924	186	924	2.8	431.890	20.041	g500-S3100	m650-U132/M4	2	168
7.5	831	22.4	925	185	925	3.6	447.027	20.067	g500-S4500	m650-U132/M4	2	241
7.2	865	21.6	962	178	962	1.8	425.369	20.869	g500-S2100	m650-U132/M4	2	129
6.7	928	20.1	1032	166	1032	3.6	445.359	22.400	g500-S4500	m650-U132/M4	2	241
6.6	939	19.9	1044	164	1044	2.5	430.583	22.663	g500-S3100	m650-U132/M4	2	168



Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n_{22}	M_{22}	n_{21}	M_2	n_2	M_2	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
6.5	961	19.4	1069	160	1069	1.6	424.992	23.193	g500-S2100	m650-U132/M4	2	129
6.1	1018	18.3	1132	151	1132	2.3	427.778	24.570	g500-S3100	m650-U132/M4	2	168
5.7	1095	17.0	1218	141	1218	3.1	435.602	26.437	g500-S4500	m650-U132/M4	2	241
5.4	1151	16.2	1280	134	1280	2.0	426.908	27.785	g500-S3100	m650-U132/M4	2	168
5.3	1171	15.9	1303	132	1303	1.3	421.693	28.275	g500-S2100	m650-U132/M4	2	129
5.1	1223	15.2	1360	126	1360	2.8	434.641	29.511	g500-S4500	m650-U132/M4	2	241
4.8	1302	14.3	1448	118	1448	1.3	421.488	31.422	g500-S2100	m650-U132/M4	2	129
4.6	1346	13.9	1497	115	1497	2.8	430.332	32.489	g500-S4500	m650-U132/M4	2	241
4.5	1379	13.5	1534	112	1534	1.9	423.006	33.289	g500-S3100	m650-U132/M4	2	168
4.4	1422	13.1	1582	108	1582	1.2	420.320	34.333	g500-S2100	m650-U132/M4	2	129
4.1	1503	12.4	1671	103	1671	2.5	429.695	36.267	g500-S4500	m650-U132/M4	2	241
3.9	1554	11.8	1729	97.7	1729	1.8	432.665	38.090	g500-S4500	m650-U132/M4	3	244
4.0	1560	12.0	1735	98.8	1735	1.7	422.532	37.644	g500-S3100	m650-U132/M4	2	168
3.9	1581	11.8	1758	97.5	1758	1.1	420.181	38.156	g500-S2100	m650-U132/M4	2	129
3.7	1675	11.1	1863	92.0	1863	1.6	421.210	40.422	g500-S3100	m650-U132/M4	2	168
3.5	1735	10.6	1930	87.5	1930	1.6	432.202	42.520	g500-S4500	m650-U132/M4	3	244
3.6	1742	10.7	1938	88.5	1938	2.0	425.166	42.044	g500-S4500	m650-U132/M4	2	241
3.3	1894	9.8	2107	81.4	2107	1.4	420.889	45.711	g500-S3100	m650-U132/M4	2	168
3.2	1924	9.5	2141	78.9	2141	1.0	421.719	47.159	g500-S3100	m650-U132/M4	3	169
3.2	1944	9.6	2163	79.3	2163	1.9	424.786	46.933	g500-S4500	m650-U132/M4	2	241
2.9	2114	8.8	2352	72.9	2352	1.5	422.705	51.027	g500-S4500	m650-U132/M4	2	241
2.8	2154	8.5	2397	70.5	2397	1.6	426.218	52.794	g500-S4500	m650-U132/M4	3	244
2.8	2176	8.4	2421	69.8	2421	1.1	421.483	53.330	g500-S3100	m650-U132/M4	3	169
2.6	2360	7.9	2625	65.3	2625	1.4	422.447	56.960	g500-S4500	m650-U132/M4	2	241
2.5	2405	7.6	2675	63.1	2675	1.4	425.977	58.933	g500-S4500	m650-U132/M4	3	244
2.3	2652	6.9	2950	57.3	2950	1.3	423.402	64.978	g500-S4500	m650-U132/M4	3	244
2.1	2960	6.2	3293	51.3	3293	1.3	423.243	72.533	g500-S4500	m650-U132/M4	3	244
2.1	2970	6.2	3304	51.1	3304	1.3	422.075	72.775	g500-S4500	m650-U132/M4	3	244
1.8	3315	5.5	3688	45.8	3688	1.1	421.949	81.237	g500-S4500	m650-U132/M4	3	244
1.6	3788	4.8	4214	40.1	4214	1.0	420.277	92.825	g500-S4500	m650-U132/M4	3	244



124 Hz: 22 kW

Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz							z	m
n ₂₂	M ₂₂	n ₂₁	M ₂	n ₂	M ₂	c	J	i				
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
38.3	171	204	215	949	215	1.4	425.001	3.920	g500-S660	m650-U132/L4	2	77
34.2	191	183	240	849	240	1.9	429.317	4.380	g500-S950	m650-U132/L4	2	96
32.7	201	174	252	810	252	3.3	461.751	4.593	g500-S2100	m650-U132/L4	2	129
30.3	216	162	271	751	271	3.3	498.658	4.951	g500-S3100	m650-U132/L4	2	168
27.9	235	149	295	692	295	1.2	421.464	5.376	g500-S660	m650-U132/L4	2	77
27.8	235	148	296	690	296	1.7	425.448	5.391	g500-S950	m650-U132/L4	2	96
24.9	263	133	331	617	331	3.1	445.432	6.029	g500-S2100	m650-U132/L4	2	129
24.8	264	133	331	616	331	1.6	423.706	6.038	g500-S950	m650-U132/L4	2	96
23.4	280	125	352	580	352	1.3	421.681	6.417	g500-S660	m650-U132/L4	2	77
23.1	284	123	356	572	356	3.1	466.853	6.499	g500-S3100	m650-U132/L4	2	168
21.8	300	116	377	542	377	2.9	438.762	6.870	g500-S2100	m650-U132/L4	2	129
21.8	300	116	377	541	377	1.0	419.684	6.880	g500-S660	m650-U132/L4	2	77
21.3	308	113	387	527	387	3.3	502.166	7.056	g500-S4500	m650-U132/L4	2	241
20.5	319	109	401	509	401	1.1	421.096	7.311	g500-S660	m650-U132/L4	2	77
20.3	323	108	406	502	406	3.1	455.259	7.406	g500-S3100	m650-U132/L4	2	168
19.5	336	104	422	483	422	1.4	421.280	7.702	g500-S950	m650-U132/L4	2	96
18.1	361	96.7	453	450	453	2.4	432.992	8.272	g500-S2100	m650-U132/L4	2	129
17.0	384	90.9	482	423	482	1.0	419.699	8.800	g500-S660	m650-U132/L4	2	77
16.8	389	89.7	489	417	489	2.8	444.371	8.917	g500-S3100	m650-U132/L4	2	168
16.5	397	87.9	499	409	499	1.4	424.472	9.100	g500-S950	m650-U132/L4	2	96
15.9	413	84.6	518	394	518	2.7	446.432	9.452	g500-S2100	m650-U132/L4	2	129
14.7	445	78.6	558	365	558	1.3	423.944	10.183	g500-S950	m650-U132/L4	2	96
14.3	459	76.2	576	354	576	2.4	444.596	10.504	g500-S2100	m650-U132/L4	2	129
13.7	477	73.2	599	340	599	2.4	436.082	10.932	g500-S3100	m650-U132/L4	2	168
13.5	486	71.9	610	334	610	3.3	458.177	11.128	g500-S3100	m650-U132/L4	2	168
13.4	489	71.4	614	332	614	1.1	422.249	11.200	g500-S950	m650-U132/L4	2	96
12.1	542	64.5	680	300	680	2.2	436.540	12.406	g500-S2100	m650-U132/L4	2	129
12.0	548	63.8	688	297	688	1.0	421.156	12.544	g500-S950	m650-U132/L4	2	96
11.9	549	63.6	690	296	690	3.2	453.937	12.584	g500-S3100	m650-U132/L4	2	168
11.7	561	62.3	704	290	704	3.3	475.705	12.843	g500-S4500	m650-U132/L4	2	241
10.9	602	58.0	756	270	756	2.0	435.474	13.787	g500-S2100	m650-U132/L4	2	129
10.7	613	57.0	769	265	769	0.9	420.878	14.037	g500-S950	m650-U132/L4	2	96
10.6	617	56.6	775	263	775	2.0	431.915	14.137	g500-S2100	m650-U132/L4	2	129
10.5	626	55.8	786	260	786	3.3	471.633	14.336	g500-S4500	m650-U132/L4	2	241
10.3	638	54.8	801	255	801	2.9	443.357	14.606	g500-S3100	m650-U132/L4	2	168
9.5	686	50.9	861	237	861	1.8	431.094	15.711	g500-S2100	m650-U132/L4	2	129
9.2	715	48.8	898	227	898	3.1	457.458	16.381	g500-S4500	m650-U132/L4	2	241
9.1	721	48.4	905	225	905	2.5	440.896	16.517	g500-S3100	m650-U132/L4	2	168
9.0	727	48.1	912	224	912	2.5	437.165	16.644	g500-S3100	m650-U132/L4	2	168
8.8	743	47.0	933	219	933	1.6	428.269	17.022	g500-S2100	m650-U132/L4	2	129
8.2	798	43.8	1002	203	1002	3.5	454.954	18.286	g500-S4500	m650-U132/L4	2	241
8.0	822	42.5	1032	198	1032	2.5	435.270	18.822	g500-S3100	m650-U132/L4	2	168
7.9	826	42.3	1037	197	1037	1.7	427.703	18.917	g500-S2100	m650-U132/L4	2	129
7.5	875	39.9	1099	186	1099	2.4	431.890	20.041	g500-S3100	m650-U132/L4	2	168
7.5	876	39.9	1100	185	1100	3.0	447.027	20.067	g500-S4500	m650-U132/L4	2	241
7.2	911	38.3	1144	178	1144	1.5	425.369	20.869	g500-S2100	m650-U132/L4	2	129
6.7	978	35.7	1228	166	1228	3.0	445.359	22.400	g500-S4500	m650-U132/L4	2	241
6.6	990	35.3	1242	164	1242	2.1	430.583	22.663	g500-S3100	m650-U132/L4	2	168
6.5	1013	34.5	1271	160	1271	1.4	424.992	23.193	g500-S2100	m650-U132/L4	2	129
6.1	1073	32.6	1347	151	1347	1.9	427.778	24.570	g500-S3100	m650-U132/L4	2	168
5.7	1154	30.3	1449	141	1449	2.6	435.602	26.437	g500-S4500	m650-U132/L4	2	241



Inverter operation									Geared motor			
5 Hz -		- 20 Hz		- 124 Hz								
n_{22}	M_{22}	n_{21}	M_2	n_2	M_2	c	J	i			z	m
rpm	Nm	rpm	Nm	rpm	Nm		kgcm ²					kg
5.4	1213	28.8	1523	134	1523	1.7	426.908	27.785	g500-S3100	m650-U132/L4	2	168
5.3	1235	28.3	1550	132	1550	1.1	421.693	28.275	g500-S2100	m650-U132/L4	2	129
5.1	1289	27.1	1618	126	1618	2.3	434.641	29.511	g500-S4500	m650-U132/L4	2	241
4.8	1372	25.5	1722	118	1722	1.1	421.488	31.422	g500-S2100	m650-U132/L4	2	129
4.6	1419	24.6	1781	115	1781	2.4	430.332	32.489	g500-S4500	m650-U132/L4	2	241
4.5	1453	24.0	1825	112	1825	1.6	423.006	33.289	g500-S3100	m650-U132/L4	2	168
4.4	1499	23.3	1882	108	1882	1.0	420.320	34.333	g500-S2100	m650-U132/L4	2	129
4.1	1583	22.1	1988	103	1988	2.1	429.695	36.267	g500-S4500	m650-U132/L4	2	241
3.9	1638	21.0	2057	97.7	2057	1.5	432.665	38.090	g500-S4500	m650-U132/L4	3	244
4.0	1644	21.3	2064	98.8	2064	1.4	422.532	37.644	g500-S3100	m650-U132/L4	2	168
3.9	1666	21.0	2092	97.5	2092	0.9	420.181	38.156	g500-S2100	m650-U132/L4	2	129
3.7	1765	19.8	2216	92.0	2216	1.3	421.210	40.422	g500-S3100	m650-U132/L4	2	168
3.5	1829	18.8	2296	87.5	2296	1.4	432.202	42.520	g500-S4500	m650-U132/L4	3	244
3.6	1836	19.0	2305	88.5	2305	1.7	425.166	42.044	g500-S4500	m650-U132/L4	2	241
3.3	1996	17.5	2506	81.4	2506	1.2	420.889	45.711	g500-S3100	m650-U132/L4	2	168
3.2	2049	17.0	2573	79.3	2573	1.6	424.786	46.933	g500-S4500	m650-U132/L4	2	241
2.9	2228	15.7	2797	72.9	2797	1.2	422.705	51.027	g500-S4500	m650-U132/L4	2	241
2.8	2270	15.2	2851	70.5	2851	1.3	426.218	52.794	g500-S4500	m650-U132/L4	3	244
2.6	2487	14.0	3122	65.3	3122	1.2	422.447	56.960	g500-S4500	m650-U132/L4	2	241
2.5	2534	13.6	3182	63.1	3182	1.2	425.977	58.933	g500-S4500	m650-U132/L4	3	244
2.3	2794	12.3	3509	57.3	3509	1.1	423.402	64.978	g500-S4500	m650-U132/L4	3	244
2.1	3119	11.0	3916	51.3	3916	1.1	423.243	72.533	g500-S4500	m650-U132/L4	3	244
2.1	3130	11.0	3930	51.1	3930	1.1	422.075	72.775	g500-S4500	m650-U132/L4	3	244
1.8	3494	9.8	4386	45.8	4386	1.0	421.949	81.237	g500-S4500	m650-U132/L4	3	244



7.7 Dimensions

Notes on the basic dimensions

Gearboxes	Without pre-stage	With pre-stage
g500-S130	2-stage	3-stage
g500-S220 ... S4500	2-/3-stage	4-stage

The ratio range of gearboxes with pre-stage is extended via an additional housing with gear stage between the gearbox and motor.

The basic dimensions are shown without pre-stage and are valid up to the following deviating dimensions for gearbox with pre-stage valid:

- Total length "L"
- Center distance "a" (gearbox output shaft – motor shaft)

Deviating dimensions: ▶ [Gearbox with pre-stage](#) 139

The following legend shows the structure of the dimension tables:

Motor		m550-H		
		63/S4	63/M4	63/L4
Table content	Explanation			
Total length	L	Total length of the drive without brake/feedback		
Motor length	LB	Length of the motor without brake/feedback		
Motor diameter	AC	Motor diameter		
Motor/connection distance	AD	Distance from center of motor to terminal box end		

NOTICE

For gearboxes with hollow shaft and keyway (H□□), the hole fitting H7 is interrupted in the middle area of the hollow shaft length by a free rotation.

Ensure the double-ended control of the machine shaft in the hollow shaft.

▶ The specified min. length of the machine shaft must be reached.

Gearboxes	Min. length of the machine shaft
	mm
g500-S130	75
g500-S220	80
g500-S400	100
g500-S660	110
g500-S950	120
g500-S2100	135
g500-S3100	155
g500-S4500	190

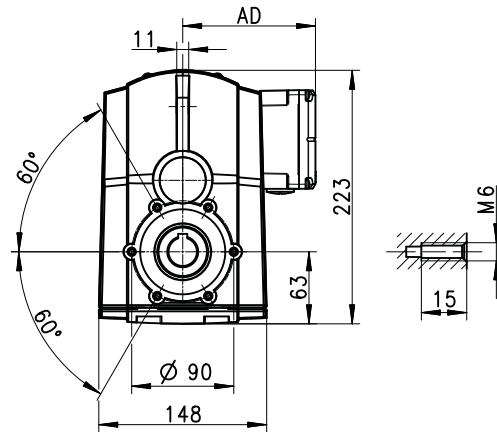
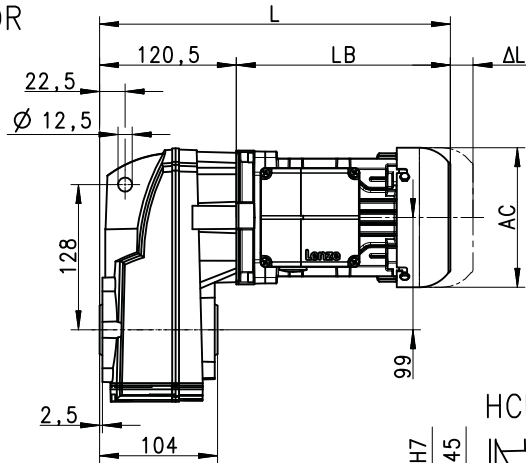


7.7.1 Basic dimensions

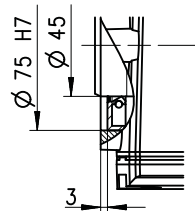
g500-S130, 2-stage

Gearbox design: Hollow shaft, without foot (HDR/HCR/HCK)

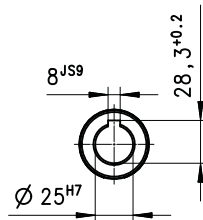
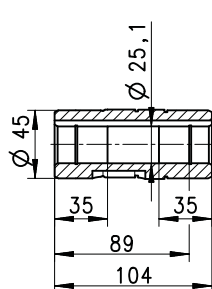
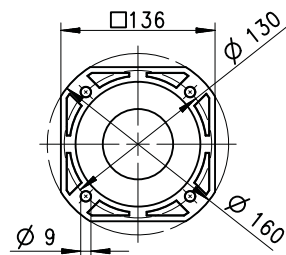
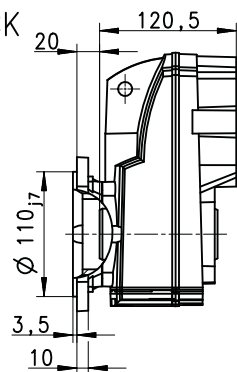
HDR



HCR



HCK



8801205-00

Motor series			m650-U			
Motor			063L04	071M04 071L04	080M04	090M04 090L04
Total length	L	mm	309	339	363	405
Motor length	LB	mm	189	218	242	285
Motor diameter	AC	mm	123	139	156	177
Motor/connection distance	AD	mm	117	129	145	153

ΔL ▶ Additional lengths 143

Technical data

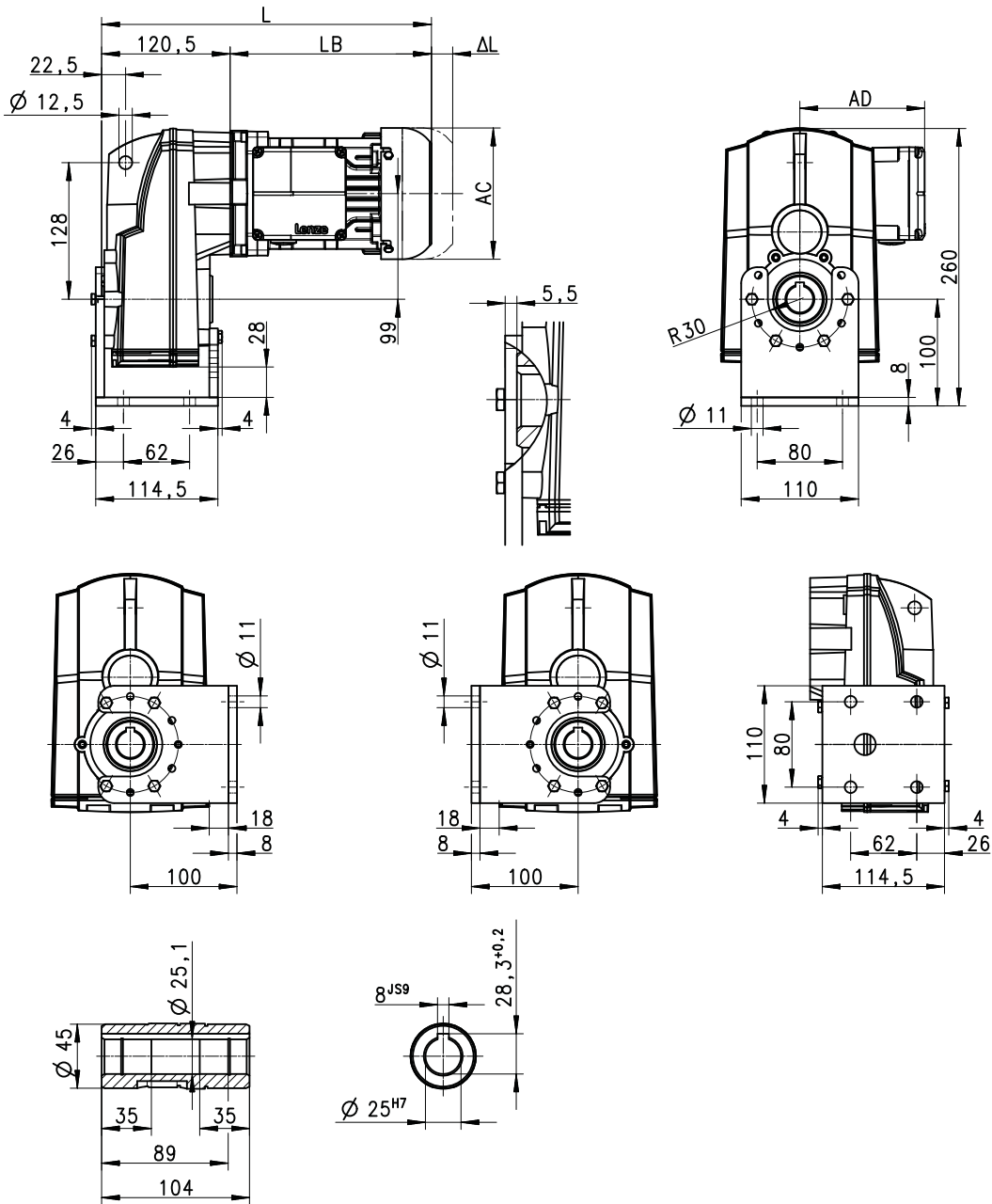
Dimensions
Basic dimensions



g500-S130, 2-stage

Gearbox design: Hollow shaft, with foot (HBR)

HBR



8801209-00

Motor series			m650-U			
Motor			063L04	071M04 071L04	080M04	090M04 090L04
Total length	L	mm	309	339	363	405
Motor length	LB	mm	189	218	242	285
Motor diameter	AC	mm	123	139	156	177
Motor/connection distance	AD	mm	117	129	145	153

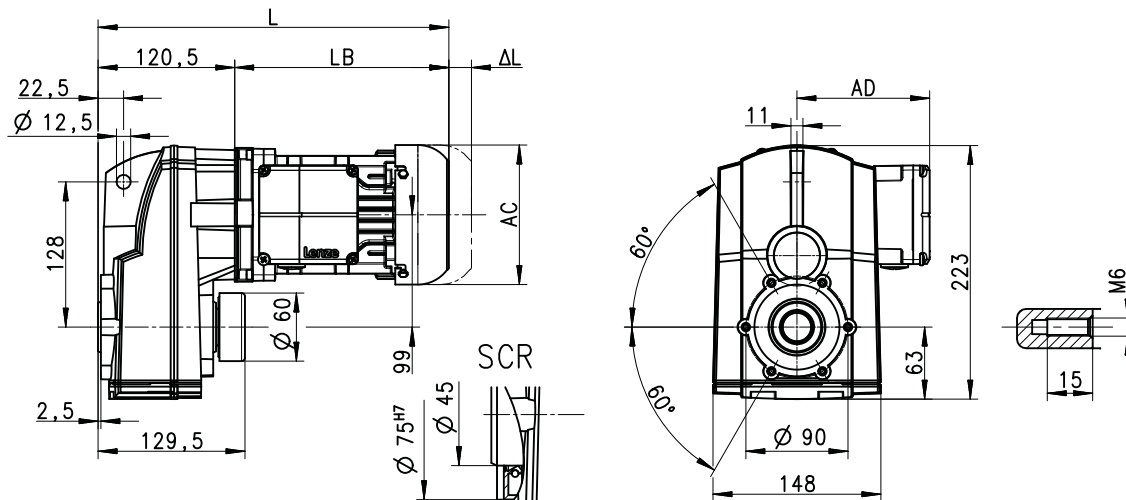
ΔL ▶ Additional lengths 143



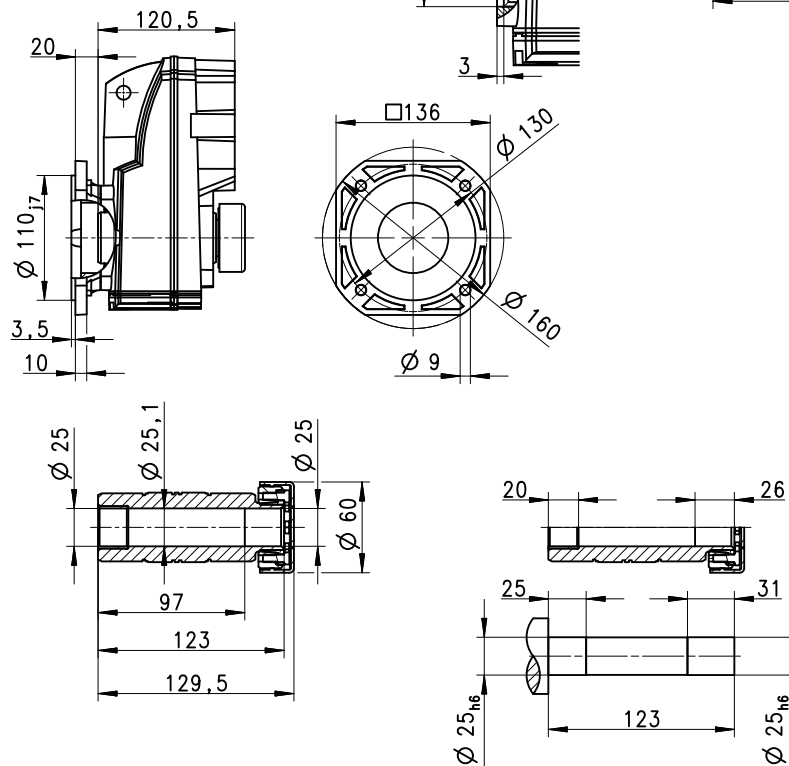
g500-S130, 2-stage

Gearbox design: Hollow shaft with shrink disc, without foot (SDR/SCR/SCK)

SDR



SCK



8801207-01

Motor series			m650-U			
Motor			063L04	071M04 071L04	080M04	090M04 090L04
Total length	L	mm	309	339	363	405
Motor length	LB	mm	189	218	242	285
Motor diameter	AC	mm	123	139	156	177
Motor/connection distance	AD	mm	117	129	145	153

Δ L ▶ Additional lengths 143

Technical data

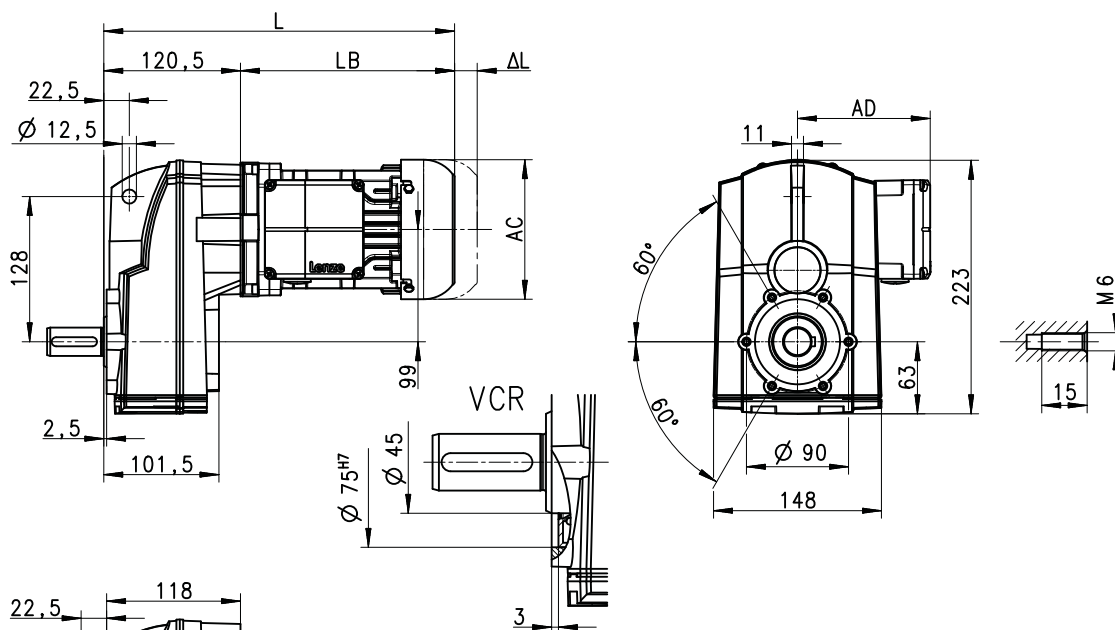
Dimensions
Basic dimensions



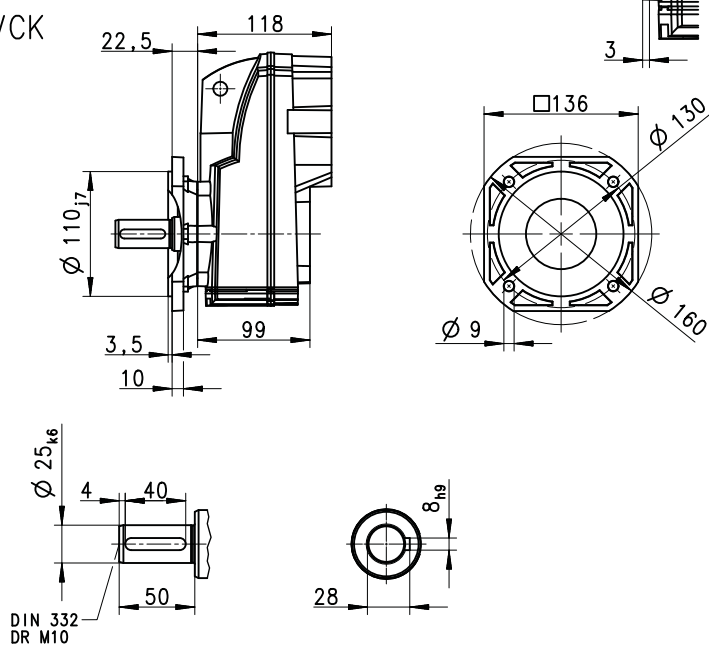
g500-S130, 2-stage

Gearbox design: Solid shaft, without foot (VDR/VCR/VCK)

VDR



VCK



8801206-00

Motor series			m650-U			
Motor			063L04	071M04 071L04	080M04	090M04 090L04
Total length	L	mm	309	339	363	405
Motor length	LB	mm	189	218	242	285
Motor diameter	AC	mm	123	139	156	177
Motor/connection distance	AD	mm	117	129	145	153

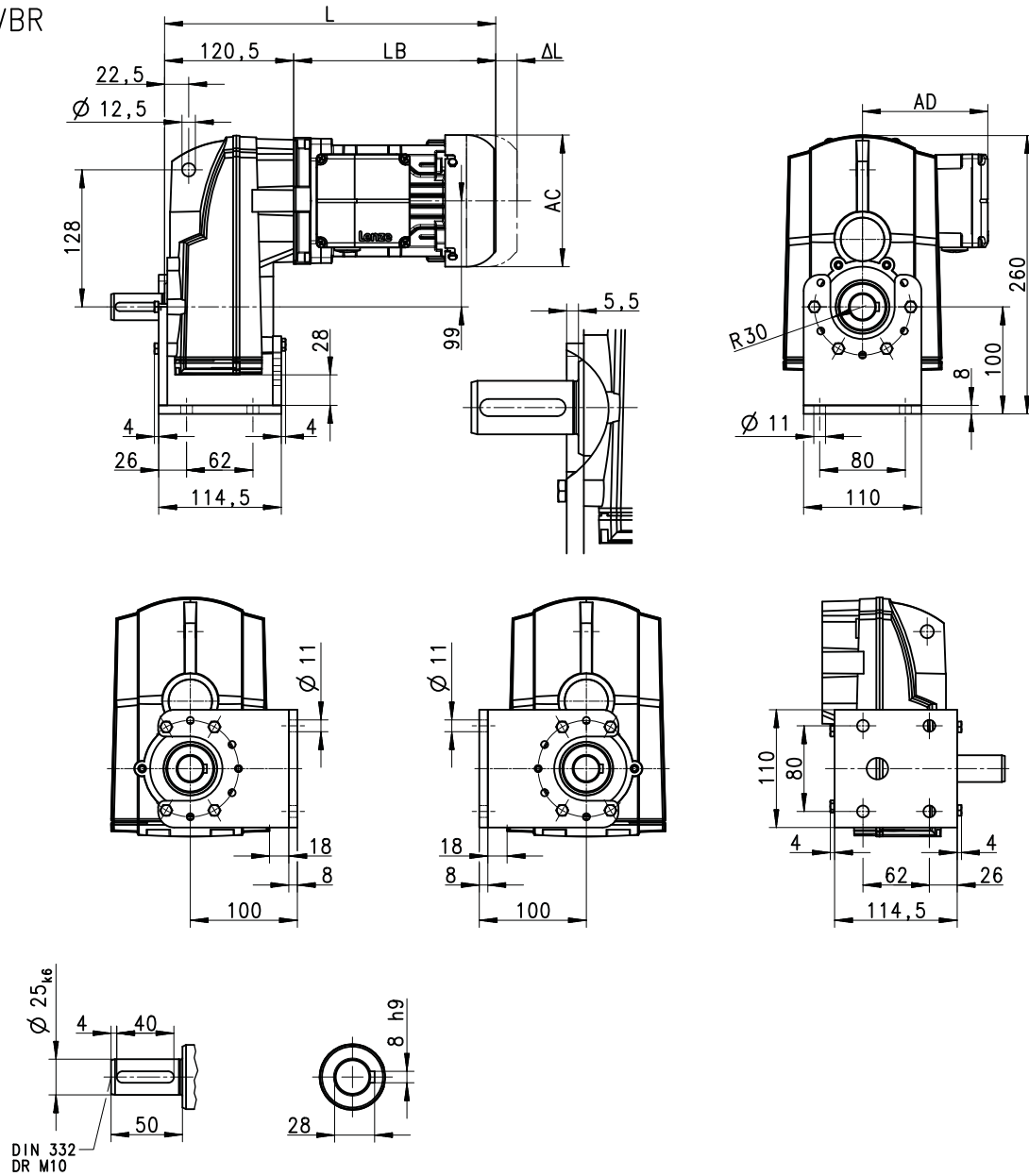
Δ L ▶ Additional lengths □ 143



g500-S130, 2-stage

Gearbox design: Solid shaft, with foot (VBR)

VBR



8801208-00

Motor series			m650-U			
Motor			063L04	071M04 071L04	080M04	090M04 090L04
Total length	L	mm	309	339	363	405
Motor length	LB	mm	189	218	242	285
Motor diameter	AC	mm	123	139	156	177
Motor/connection distance	AD	mm	117	129	145	153

Δ L ▶ Additional lengths 143

Technical data

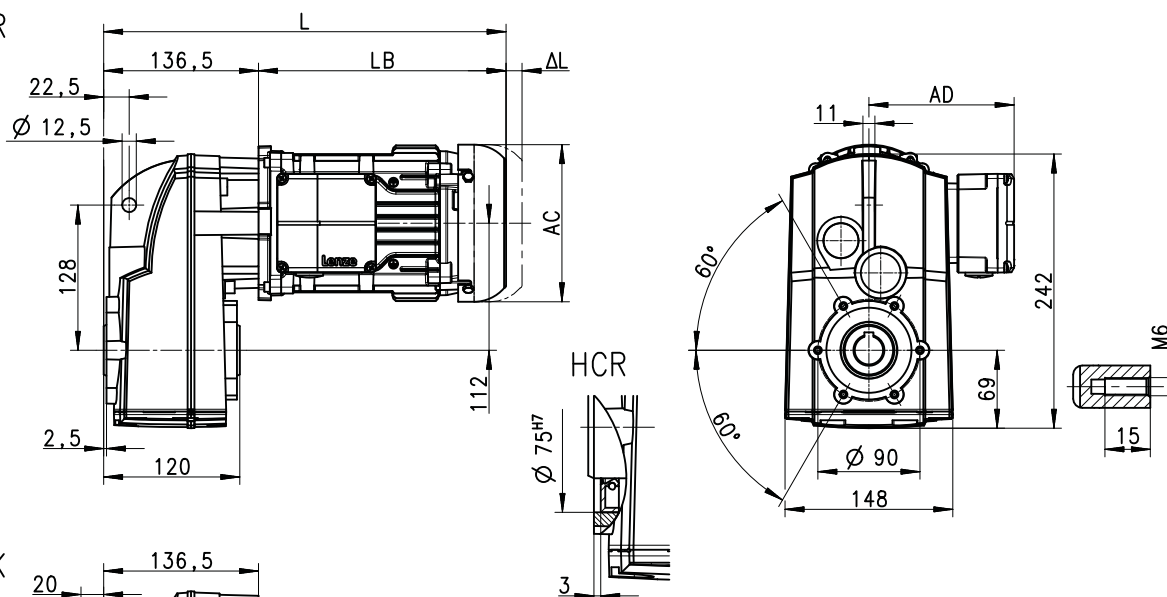
Dimensions
Basic dimensions



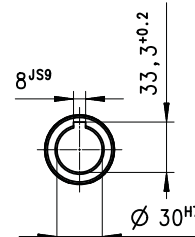
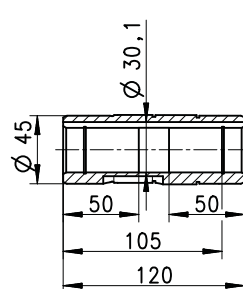
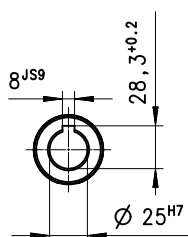
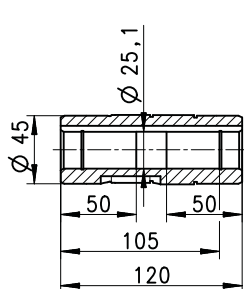
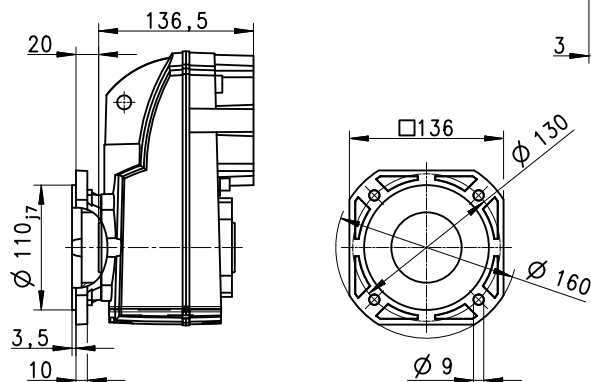
g500-S220, 2-/3-stage

Gearbox design: Hollow shaft, without foot (HDR/HCR/HCK)

HDR



HCK



8801210-00

Motor series			m650-U				
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04
Total length	L	mm	325	355	379	421	485
Motor length	LB	mm	189	218	242	285	348
Motor diameter	AC	mm	123	139	156	177	194
Motor/connection distance	AD	mm	117	129	145	153	164

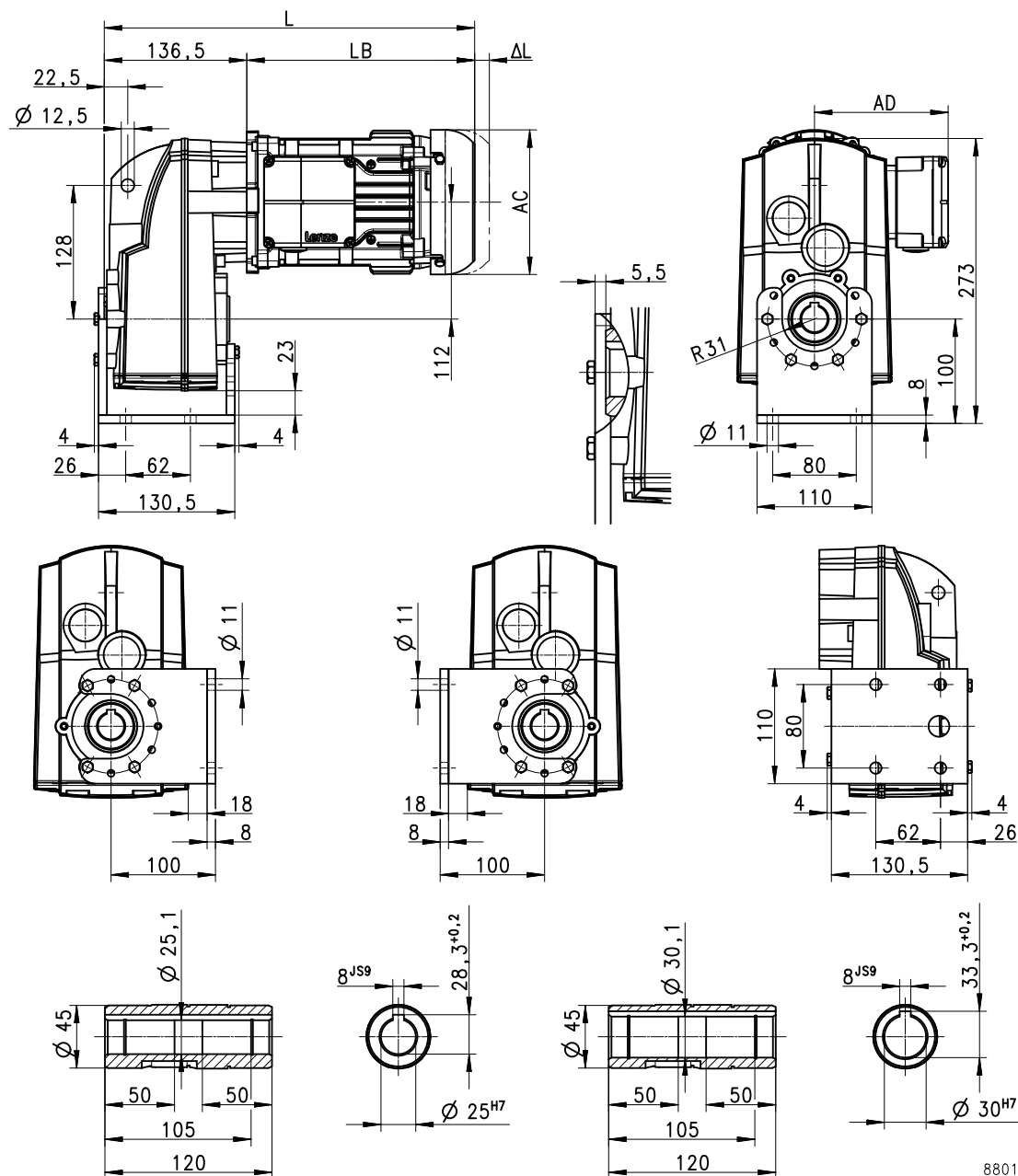
Δ L ▶ Additional lengths □ 143



g500-S220, 2-/3-stage

Gearbox design: Hollow shaft, with foot (HBR)

HBR



8801214-00

Motor series			m650-U				
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04
Total length	L	mm	325	355	379	421	485
Motor length	LB	mm	189	218	242	285	348
Motor diameter	AC	mm	123	139	156	177	194
Motor/connection distance	AD	mm	117	129	145	153	164

ΔL ▶ Additional lengths [143](#)

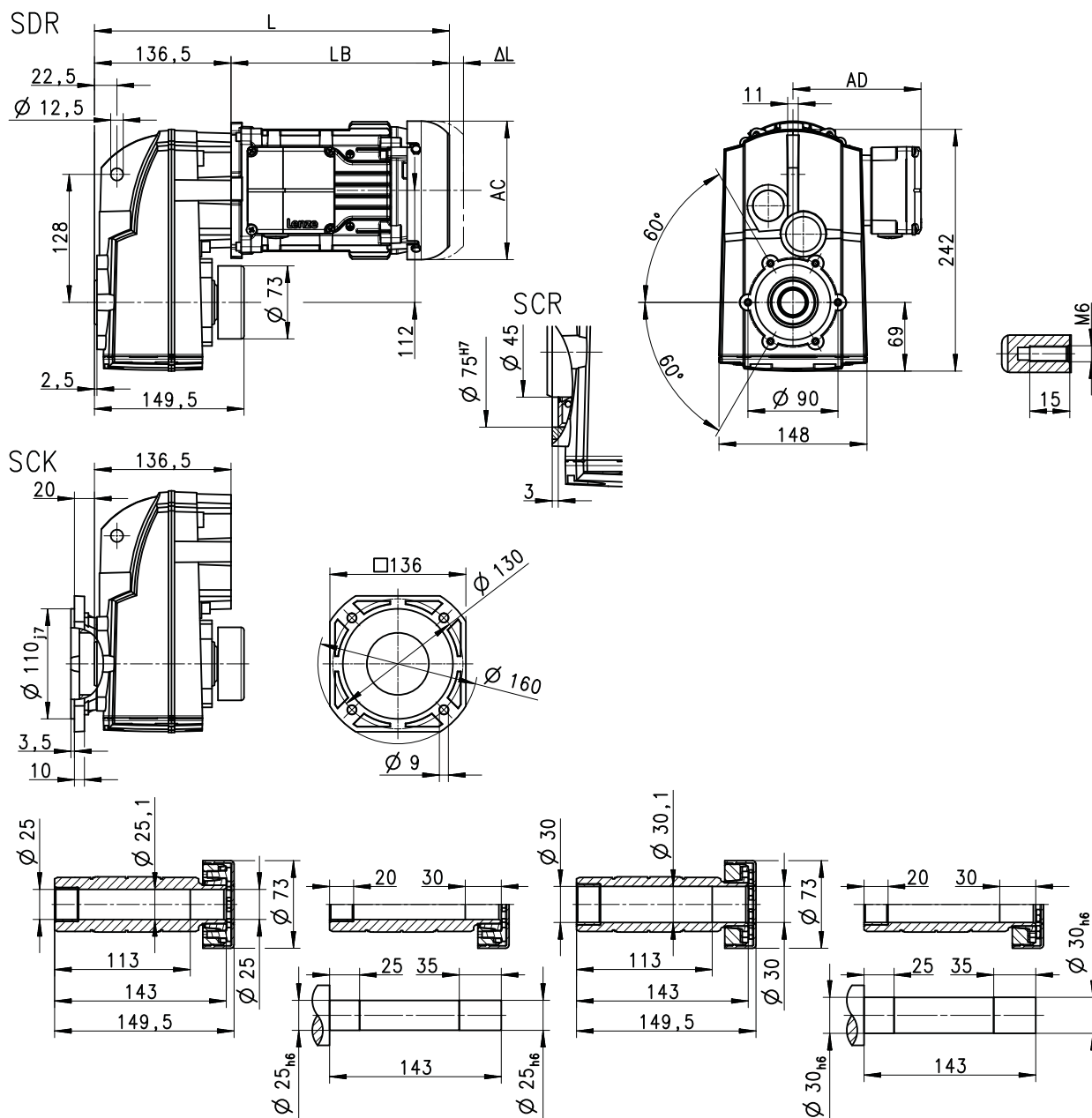
Technical data

Dimensions
Basic dimensions



g500-S220, 2-/3-stage

Gearbox design: Hollow shaft with shrink disc, without foot (SDR/SCR/SCK)



8801212-01

Motor series			m650-U				
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04
Total length	L	mm	325	355	379	421	485
Motor length	LB	mm	189	218	242	285	348
Motor diameter	AC	mm	123	139	156	177	194
Motor/connection distance	AD	mm	117	129	145	153	164

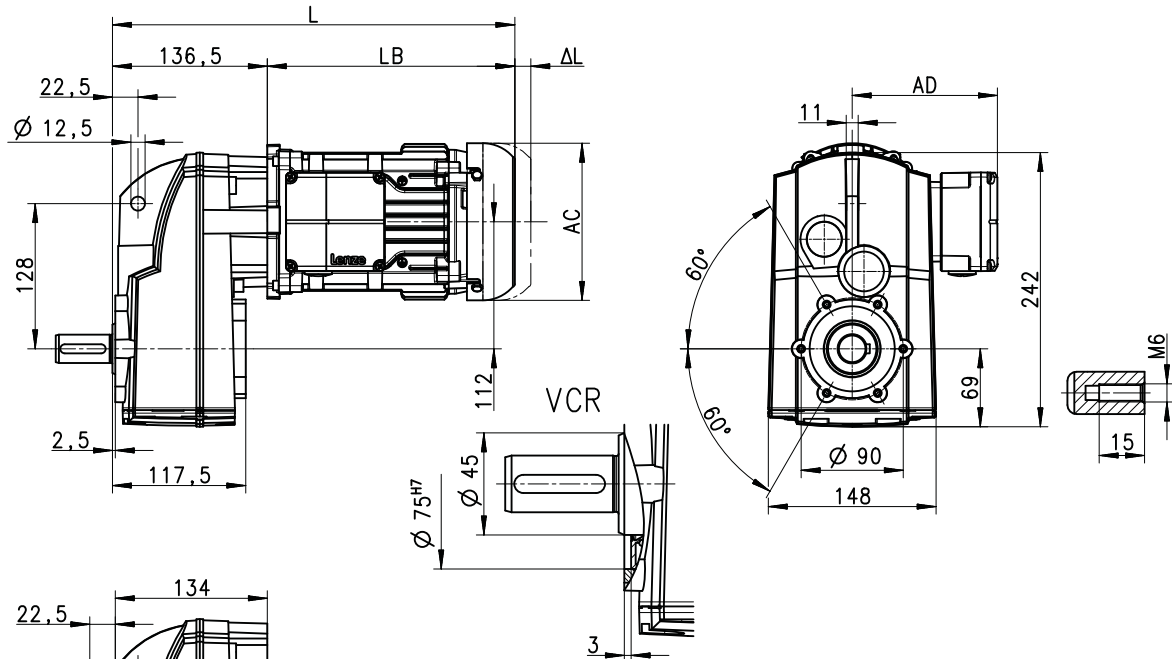
Δ L ▶ Additional lengths $\square$ 143



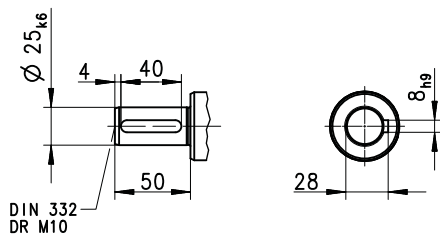
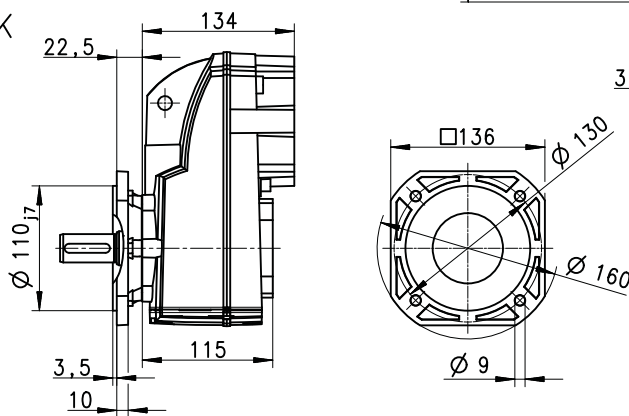
g500-S220, 2-/3-stage

Gearbox design: Solid shaft, without foot (VDR/VCR/VCK)

VDR



VCK



DIN 332
DR M10

8801211-00

Motor series			m650-U				
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04
Total length	L	mm	325	355	379	421	485
Motor length	LB	mm	189	218	242	285	348
Motor diameter	AC	mm	123	139	156	177	194
Motor/connection distance	AD	mm	117	129	145	153	164

Δ L ▶ Additional lengths □ 143

Technical data

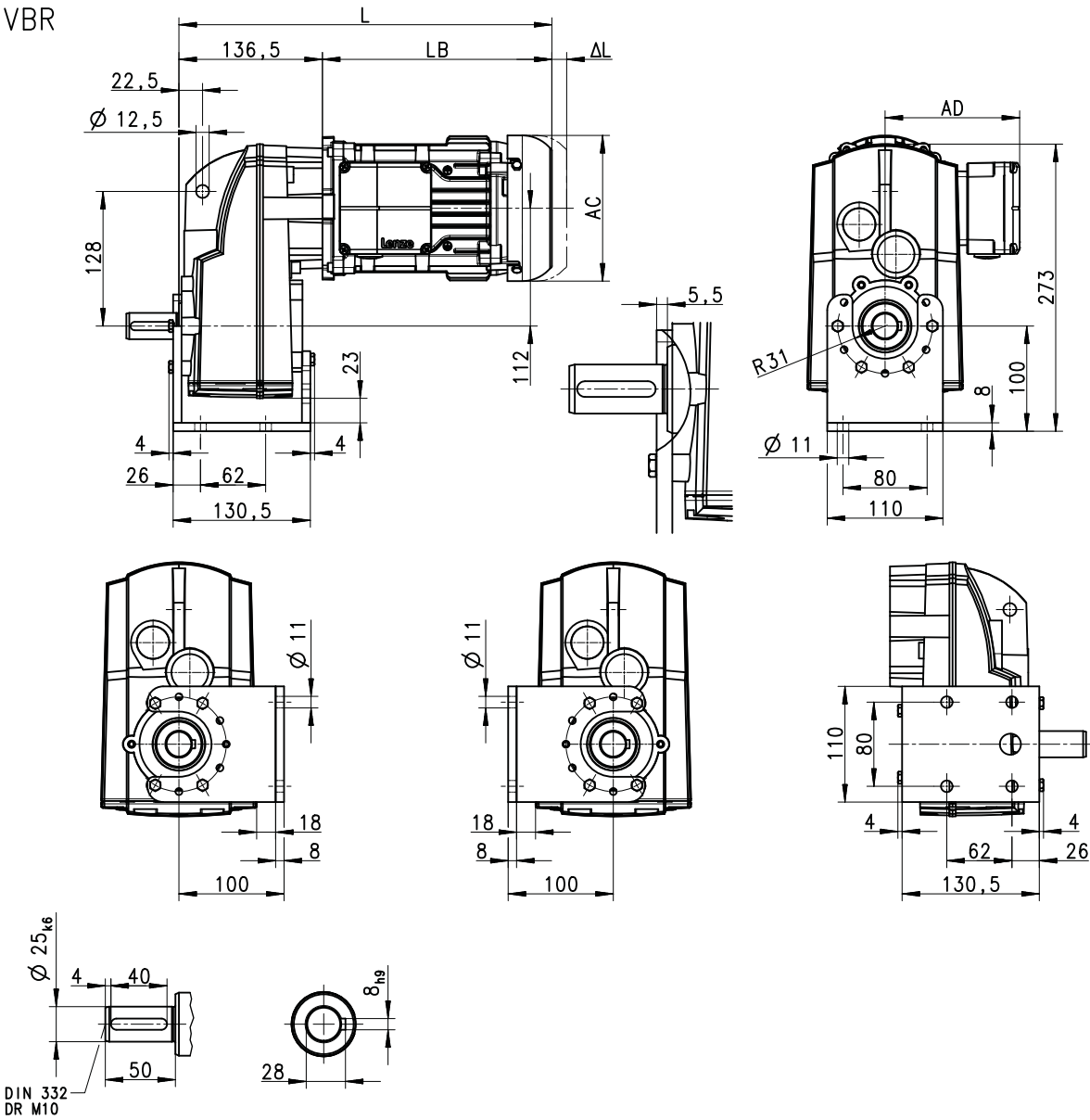
Dimensions
Basic dimensions



g500-S220, 2-/3-stage

Gearbox design: Solid shaft, with foot (VBR)

VBR



8801213-00

Motor series			m650-U				
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04
Total length	L	mm	325	355	379	421	485
Motor length	LB	mm	189	218	242	285	348
Motor diameter	AC	mm	123	139	156	177	194
Motor/connection distance	AD	mm	117	129	145	153	164

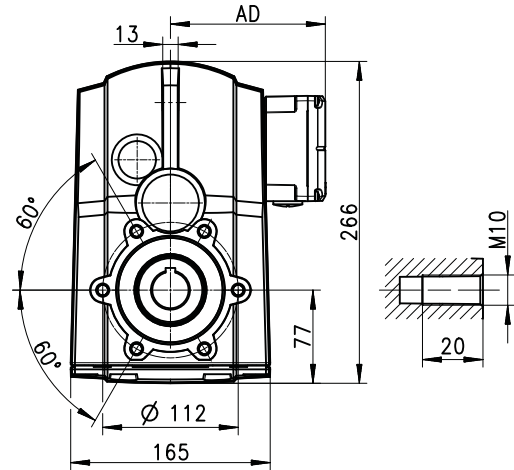
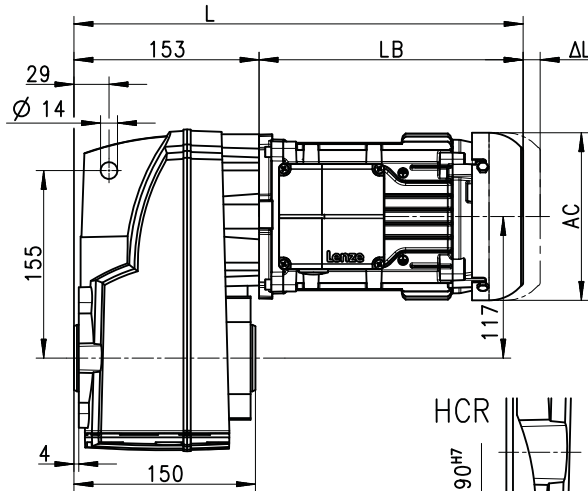
Δ L ▶ Additional lengths 143



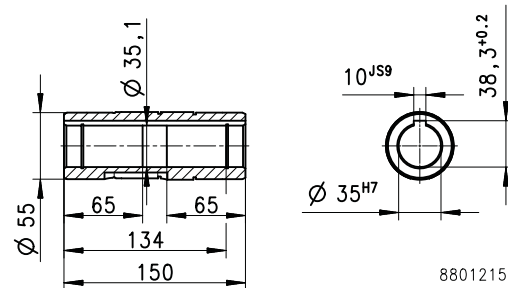
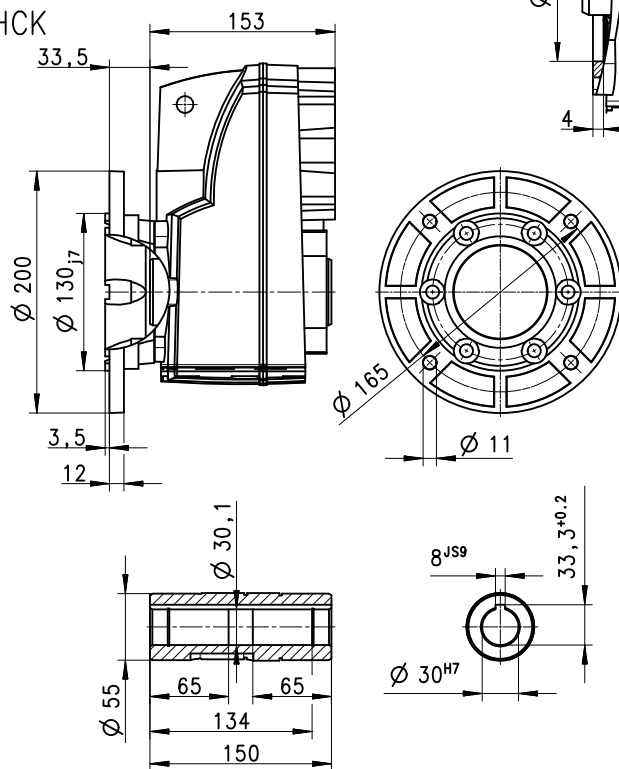
g500-S400, 2-/3-stage

Gearbox design: Hollow shaft, without foot (HDR/HCR/HCK)

HDR



HCK



8801215-00

Motor series			m650-U					
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04
Total length	L	mm	342	371	395	438	501	514
Motor length	LB	mm	189	218	242	285	348	361
Motor diameter	AC	mm	123	139	156	177	194	220
Motor/connection distance	AD	mm	117	129	145	153	164	169

Δ L ▶ Additional lengths 143

Technical data

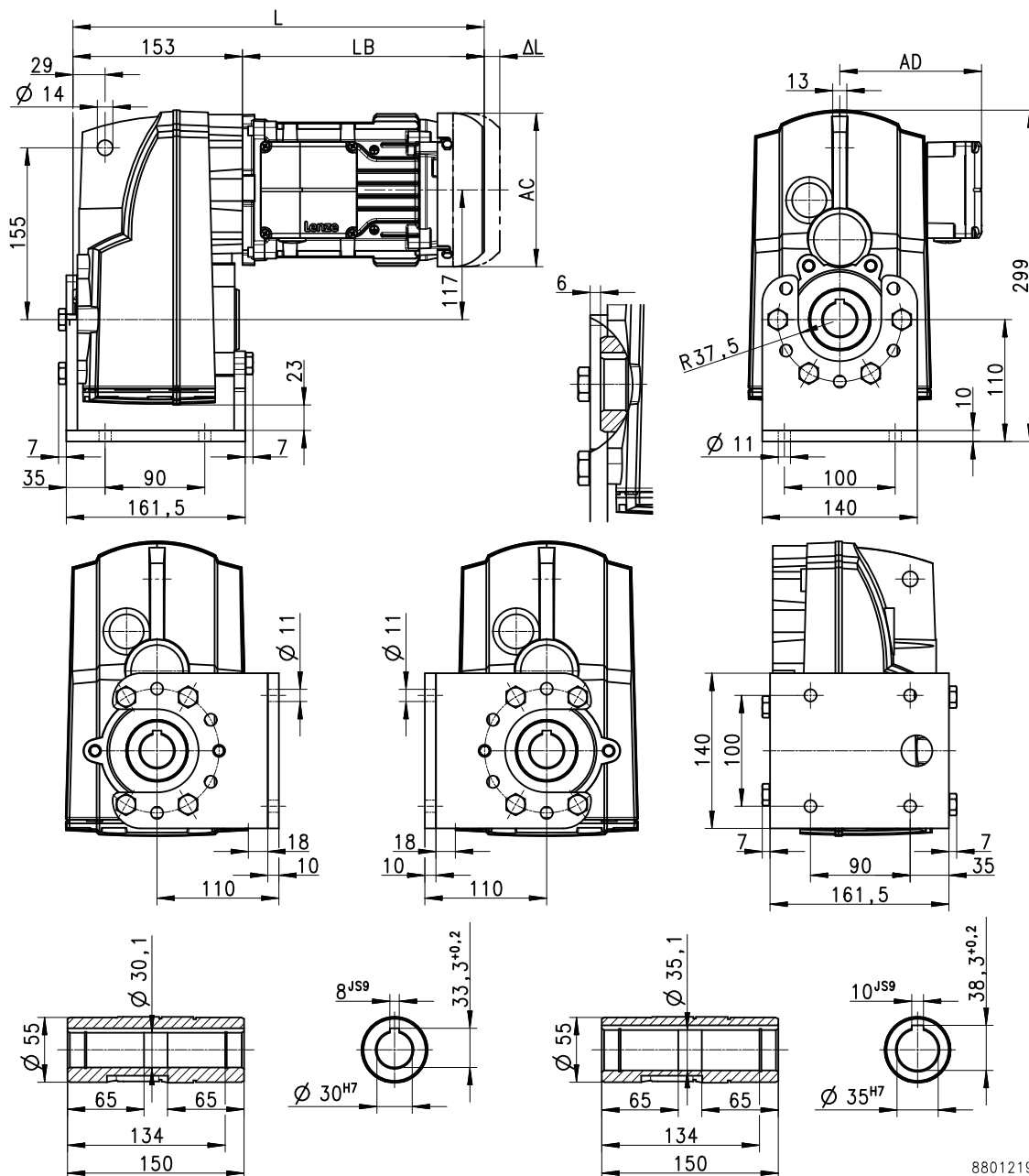
Dimensions
Basic dimensions



g500-S400, 2-/3-stage

Gearbox design: Hollow shaft, with foot (HBR)

HBR



8801219-00

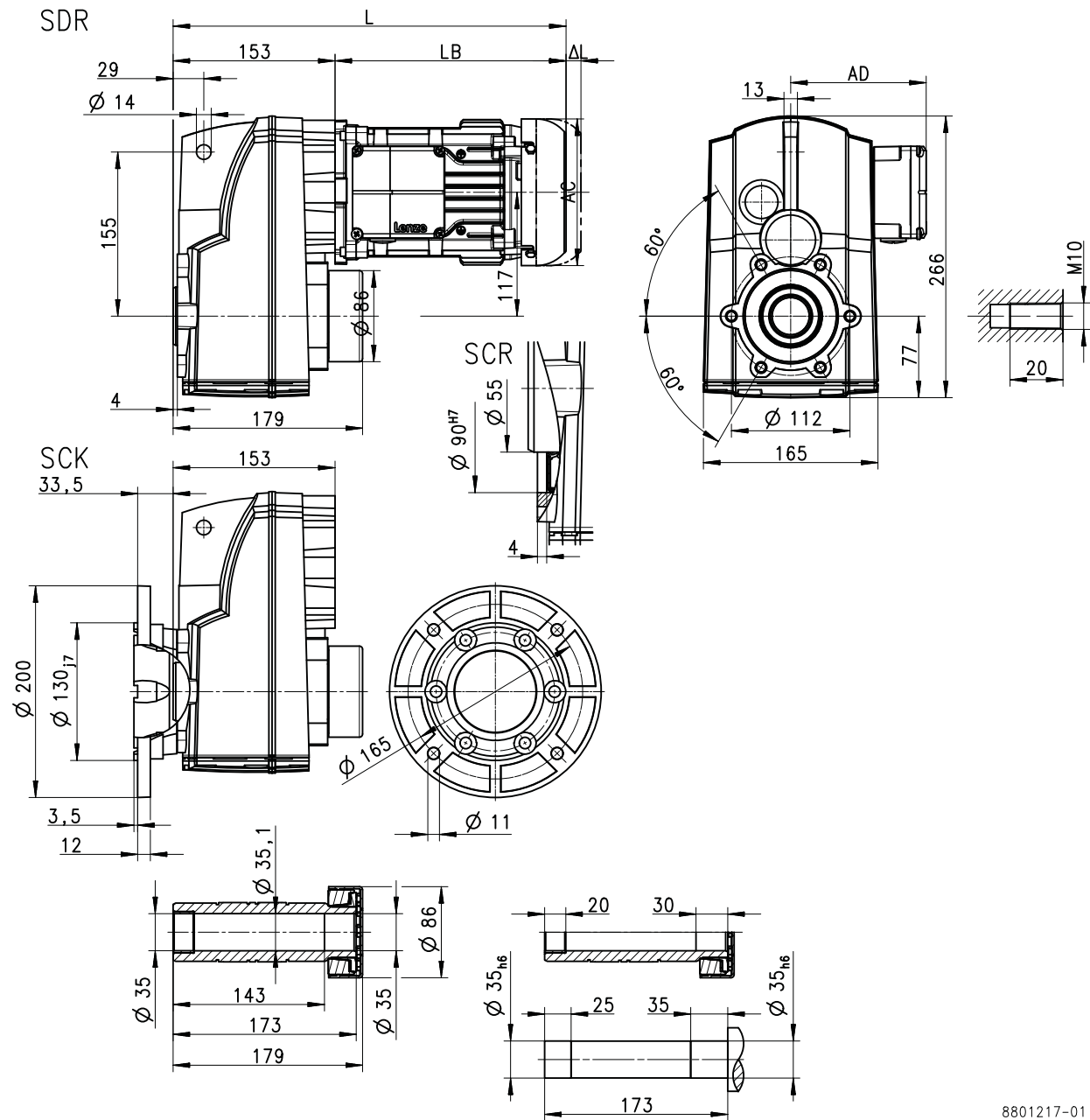
Motor series			m650-U					
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04
Total length	L	mm	342	371	395	438	501	514
Motor length	LB	mm	189	218	242	285	348	361
Motor diameter	AC	mm	123	139	156	177	194	220
Motor/connection distance	AD	mm	117	129	145	153	164	169

Δ L ► Additional lengths 143



g500-S400, 2-/3-stage

Gearbox design: Hollow shaft with shrink disc, without foot (SDR/SCR/SCK)



8801217-01

Motor series			m650-U					
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04
Total length	L	mm	342	371	395	438	501	514
Motor length	LB	mm	189	218	242	285	348	361
Motor diameter	AC	mm	123	139	156	177	194	220
Motor/connection distance	AD	mm	117	129	145	153	164	169

Δ L ▶ Additional lengths □ 143

Technical data

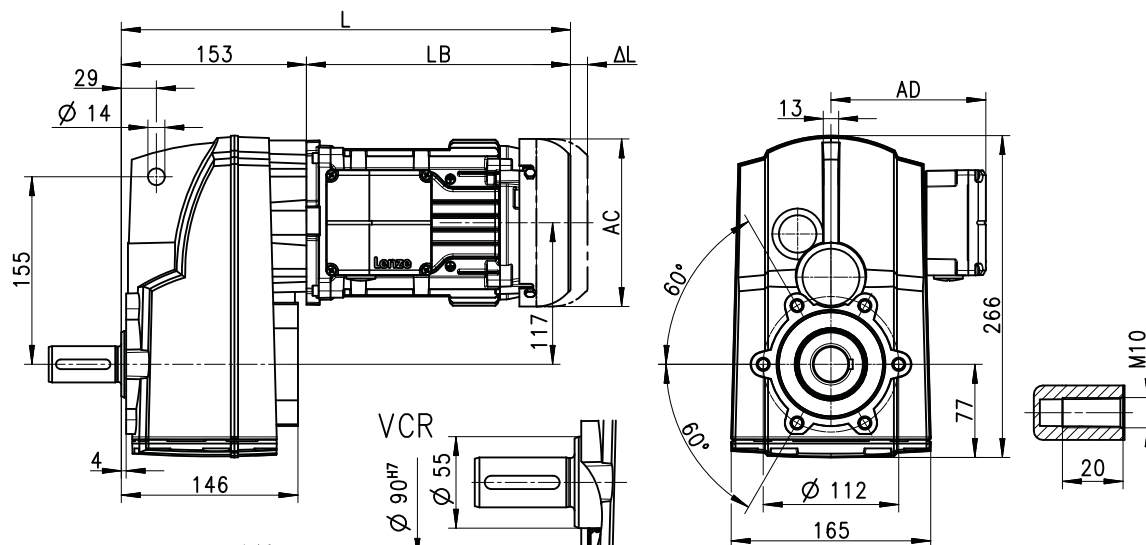
Dimensions
Basic dimensions



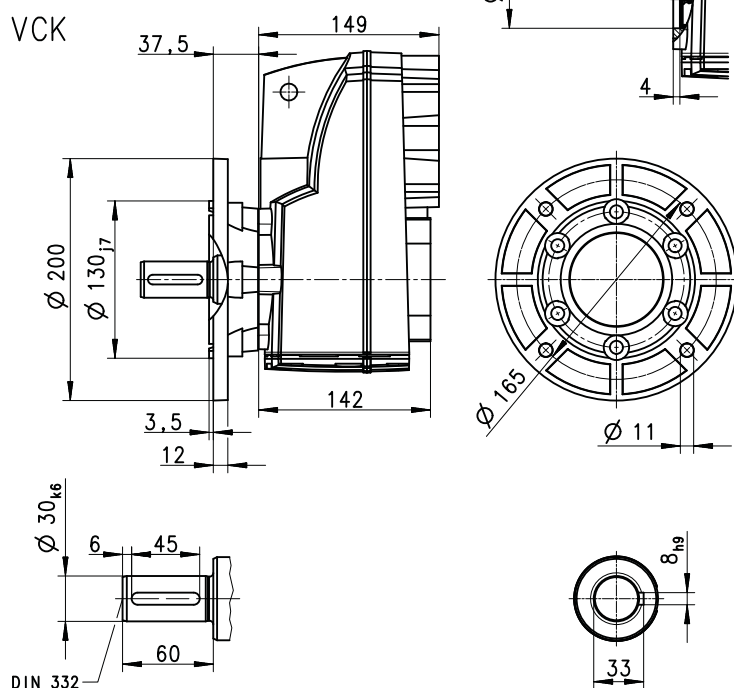
g500-S400, 2-/3-stage

Gearbox design: Solid shaft, without foot (VDR/VCR/VCK)

VDR



VCK



DIN 332
DR M10

8801216-00

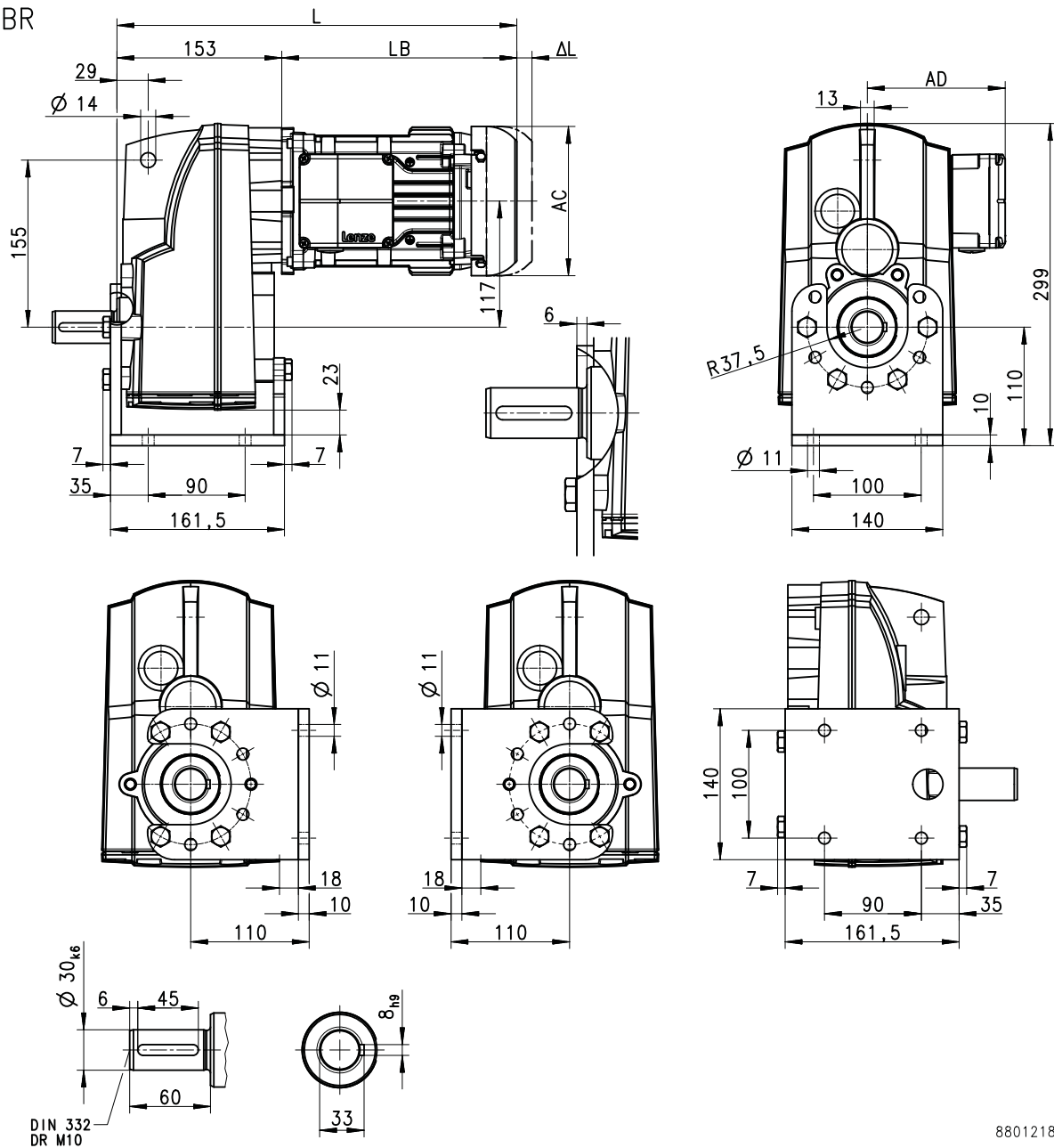
Motor series			m650-U					
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04
Total length	L	mm	342	371	395	438	501	514
Motor length	LB	mm	189	218	242	285	348	361
Motor diameter	AC	mm	123	139	156	177	194	220
Motor/connection distance	AD	mm	117	129	145	153	164	169

Δ L ▶ Additional lengths 143



Gearbox design: Solid shaft, with foot (VBR)

VBR



8801218-00

Motor series			m650-U					
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04
Total length	L	mm	342	371	395	438	501	514
Motor length	LB	mm	189	218	242	285	348	361
Motor diameter	AC	mm	123	139	156	177	194	220
Motor/connection distance	AD	mm	117	129	145	153	164	169

ΔL ▶ Additional lengths  143

Technical data

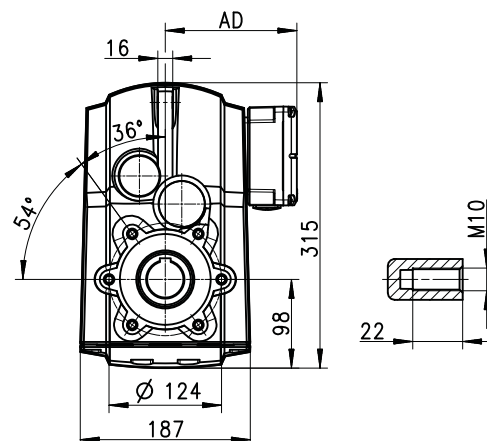
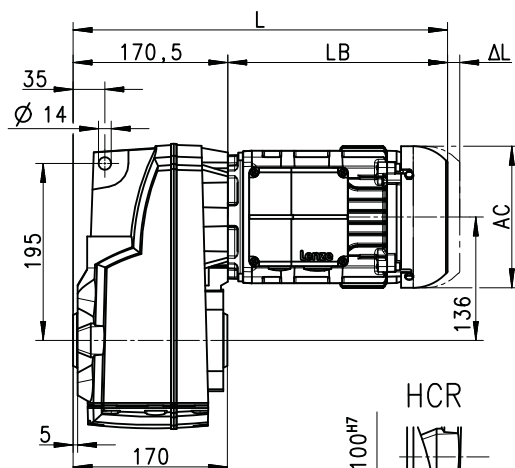
Dimensions
Basic dimensions



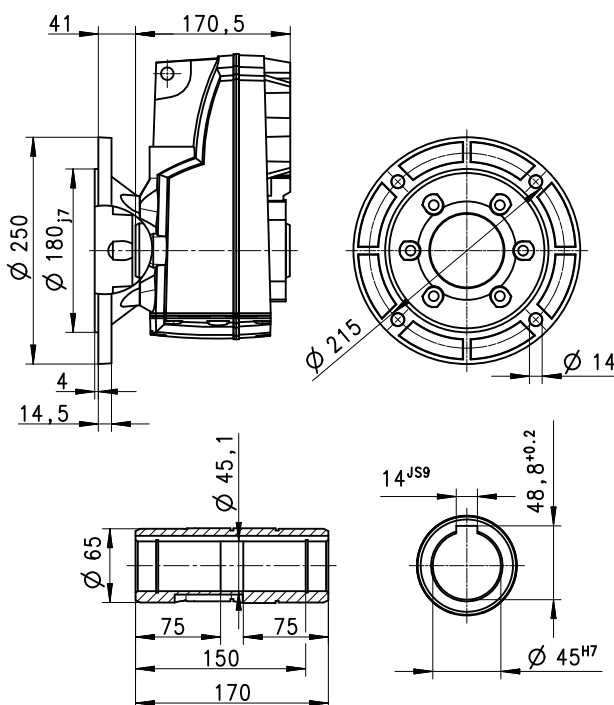
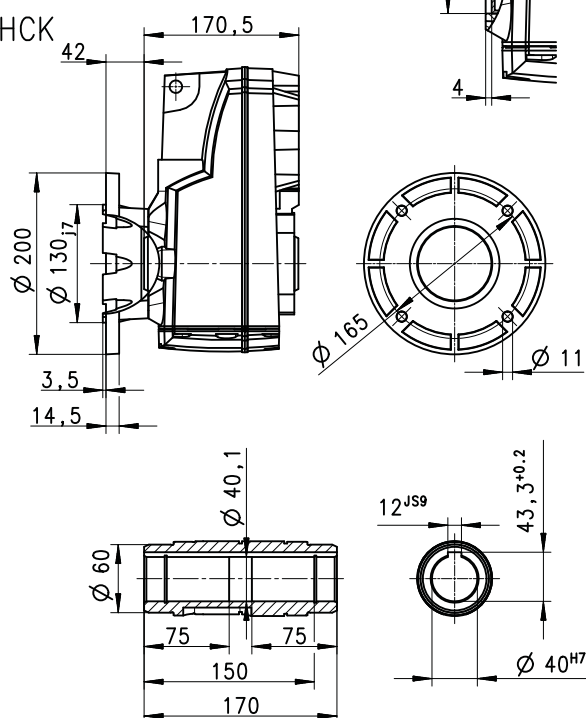
g500-S660, 2-/3-stage

Gearbox design: Hollow shaft, without foot (HDR/HCR/HCK)

HDR



HCK



8801220-00

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	359	389	413	455	519	531	595
Motor length	LB	mm	189	218	242	285	348	361	425
Motor diameter	AC	mm	123	139	156	177	194	220	258
Motor/connection distance	AD	mm	117	129	145	153	164	169	197

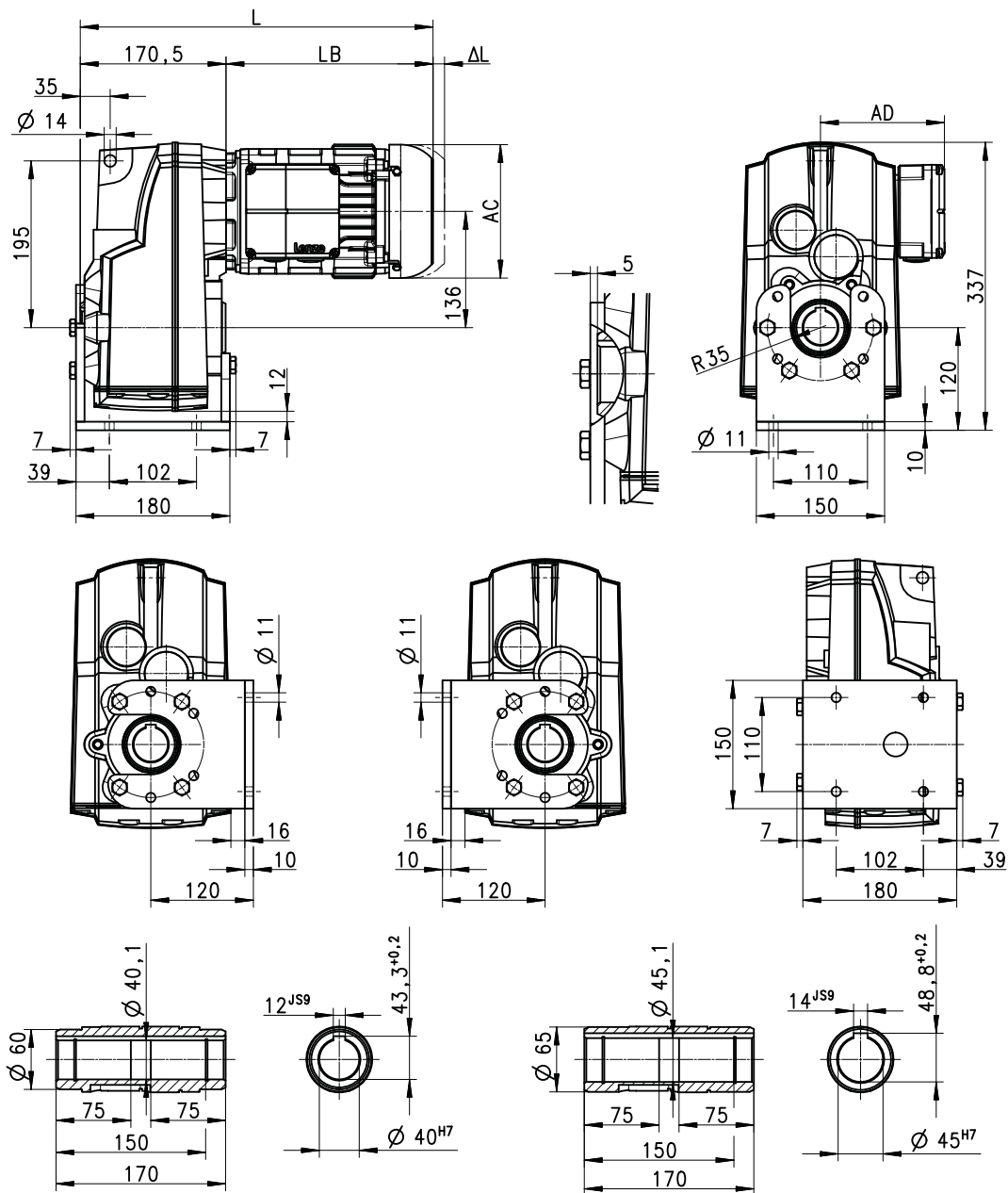
Δ L ▶ Additional lengths 143



g500-S660, 2-/3-stage

Gearbox design: Hollow shaft, with foot (HBR)

HBR



8801224-00

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	359	389	413	455	519	531	595
Motor length	LB	mm	189	218	242	285	348	361	425
Motor diameter	AC	mm	123	139	156	177	194	220	258
Motor/connection distance	AD	mm	117	129	145	153	164	169	197

ΔL ▶ Additional lengths 143

Technical data

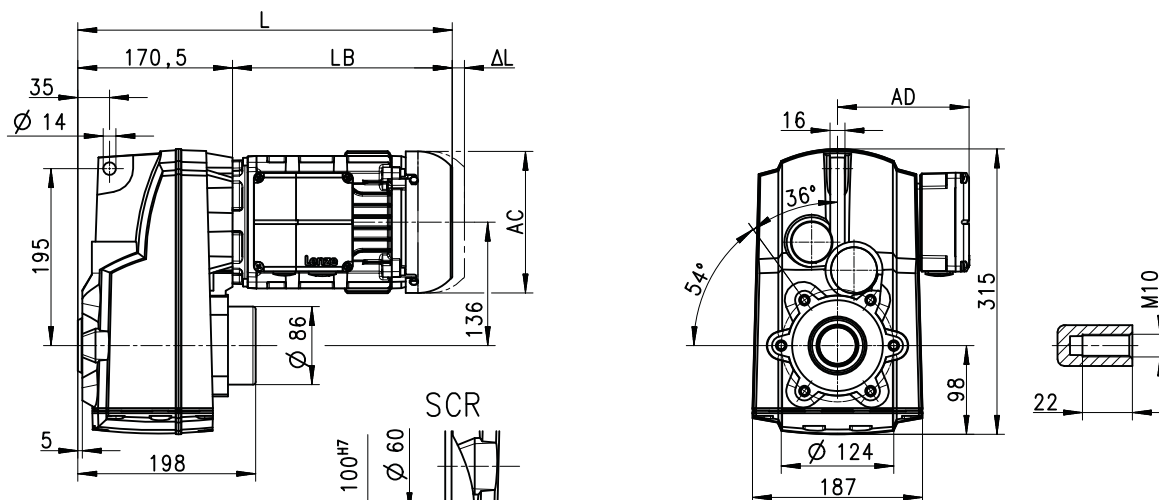
Dimensions
Basic dimensions



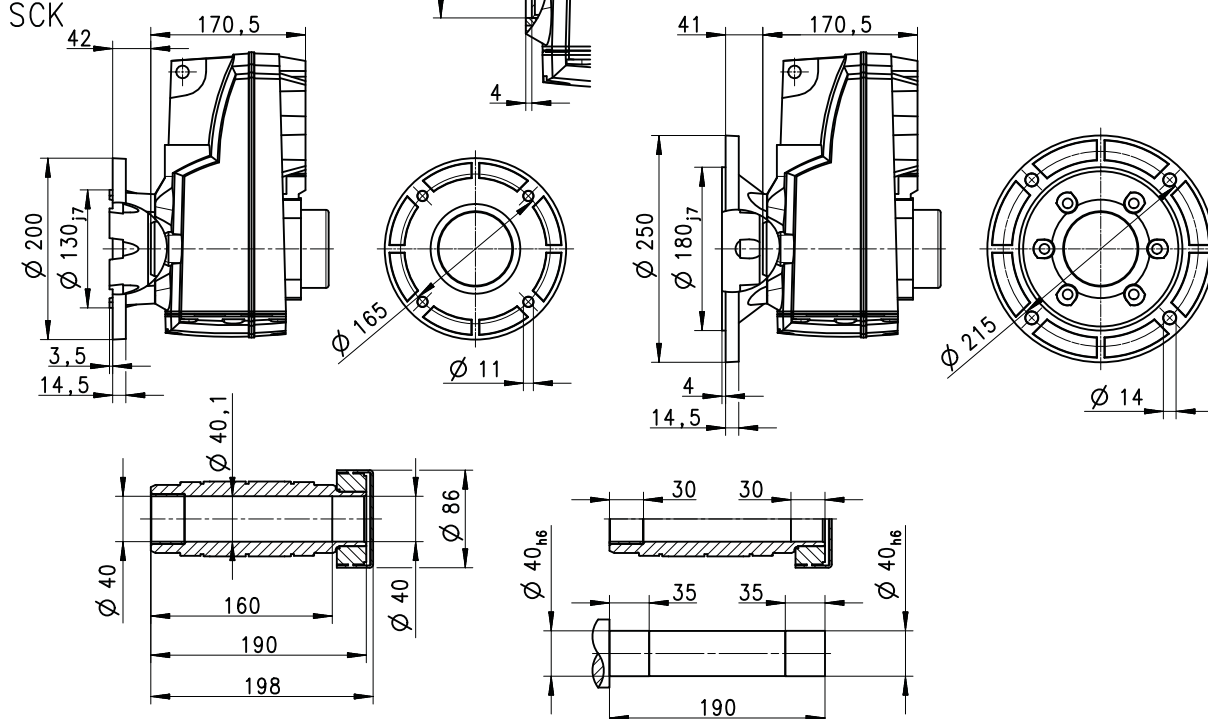
g500-S660, 2-/3-stage

Gearbox design: Hollow shaft with shrink disc, without foot (SDR/SCR/SCK)

SDR



SCK



8801222-01

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	359	389	413	455	519	531	595
Motor length	LB	mm	189	218	242	285	348	361	425
Motor diameter	AC	mm	123	139	156	177	194	220	258
Motor/connection distance	AD	mm	117	129	145	153	164	169	197

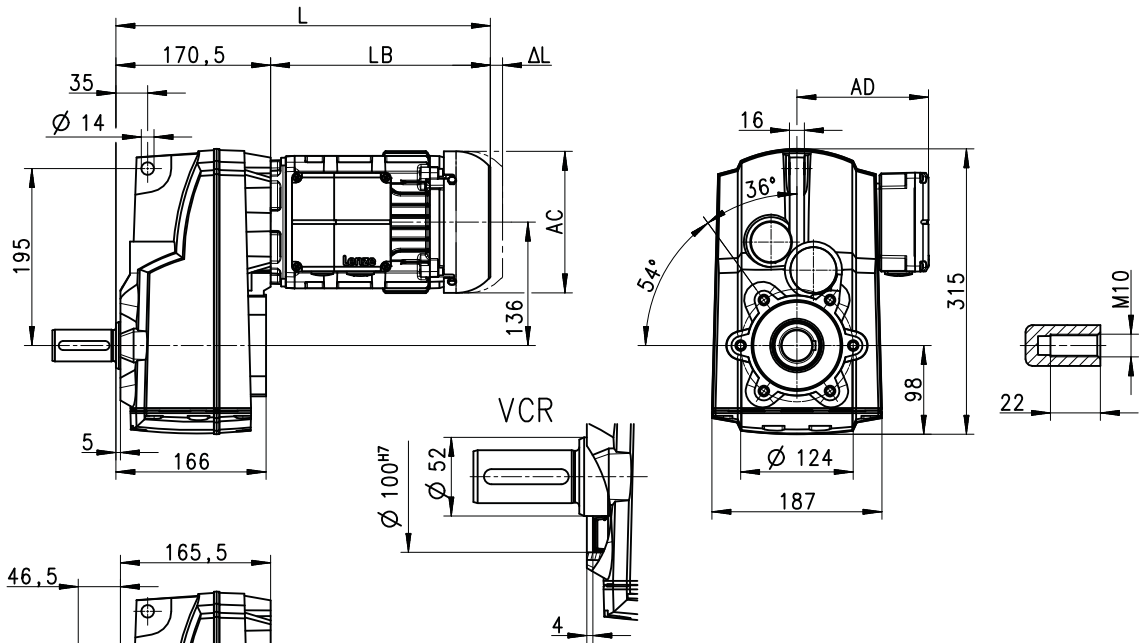
Δ L ▶ [Additional lengths](#) 143



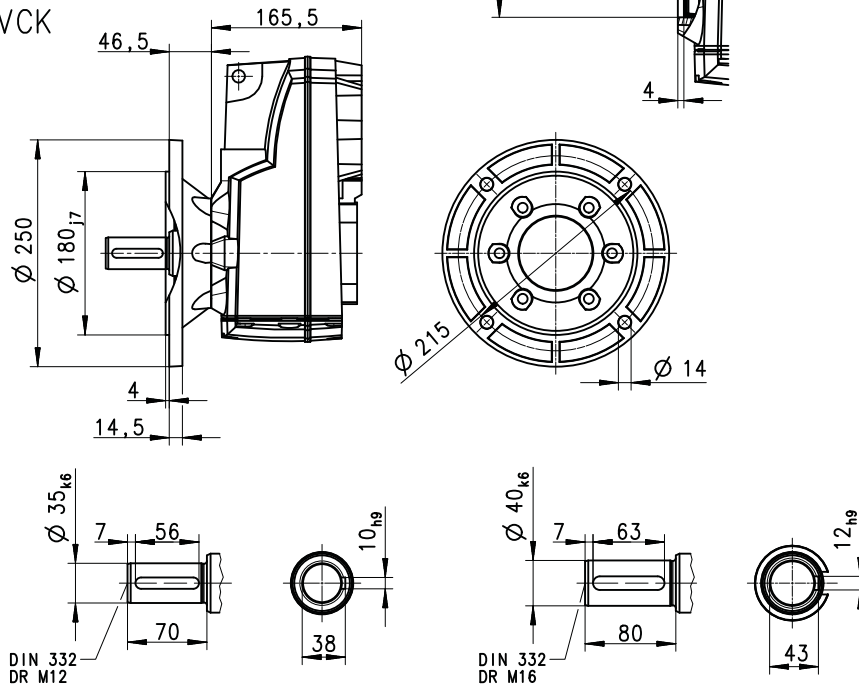
g500-S660, 2-/3-stage

Gearbox design: Solid shaft, without foot (VDR/VCR/VCK)

VDR



VCK



8801221-00

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	359	389	413	455	519	531	595
Motor length	LB	mm	189	218	242	285	348	361	425
Motor diameter	AC	mm	123	139	156	177	194	220	258
Motor/connection distance	AD	mm	117	129	145	153	164	169	197

Δ L ▶ Additional lengths 143

Technical data

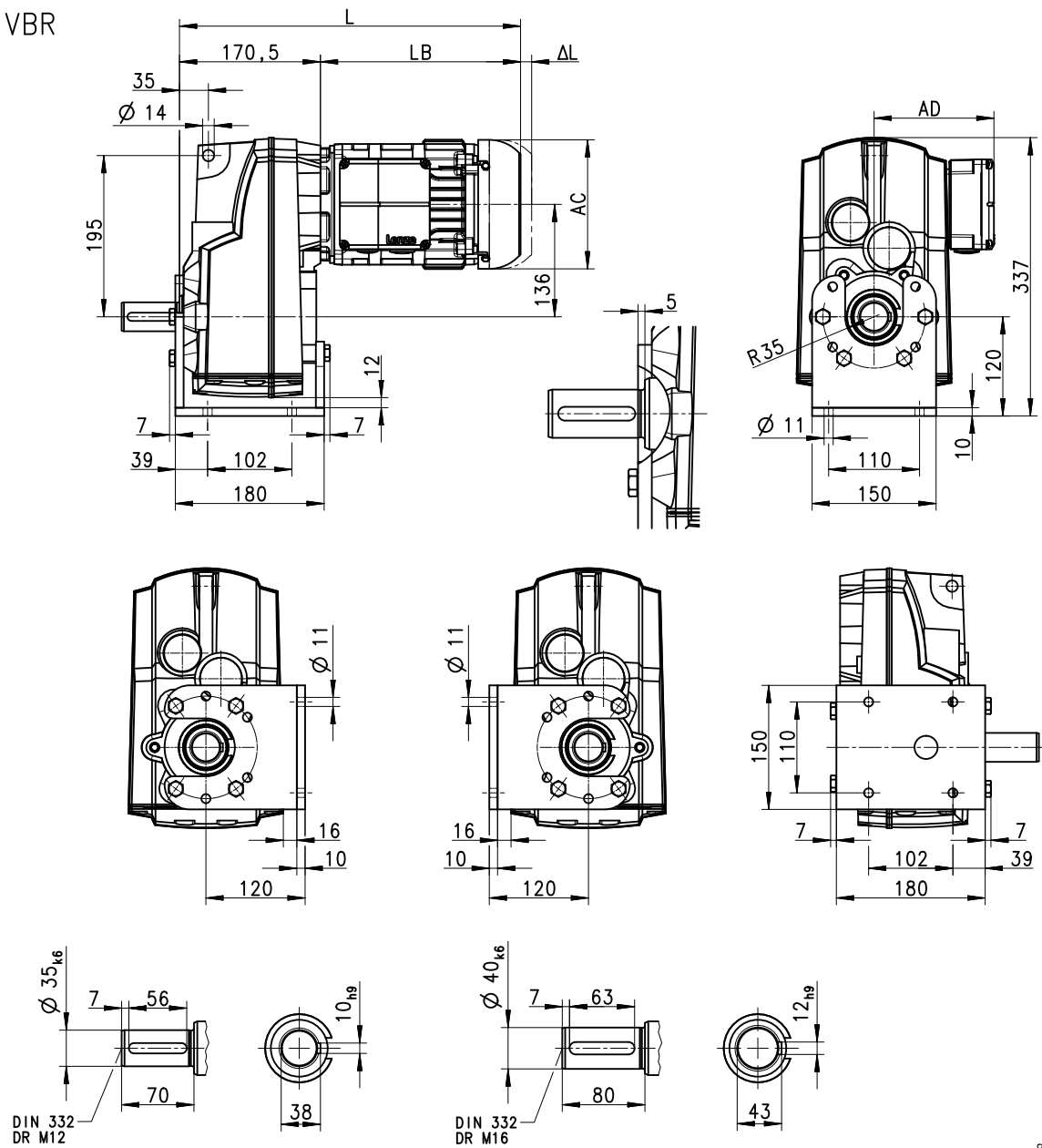
Dimensions
Basic dimensions



g500-S660, 2-/3-stage

Gearbox design: Solid shaft, with foot (VBR)

VBR



8801223-00

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	359	389	413	455	519	531	595
Motor length	LB	mm	189	218	242	285	348	361	425
Motor diameter	AC	mm	123	139	156	177	194	220	258
Motor/connection distance	AD	mm	117	129	145	153	164	169	197

Δ L ▶ [Additional lengths](#) 143



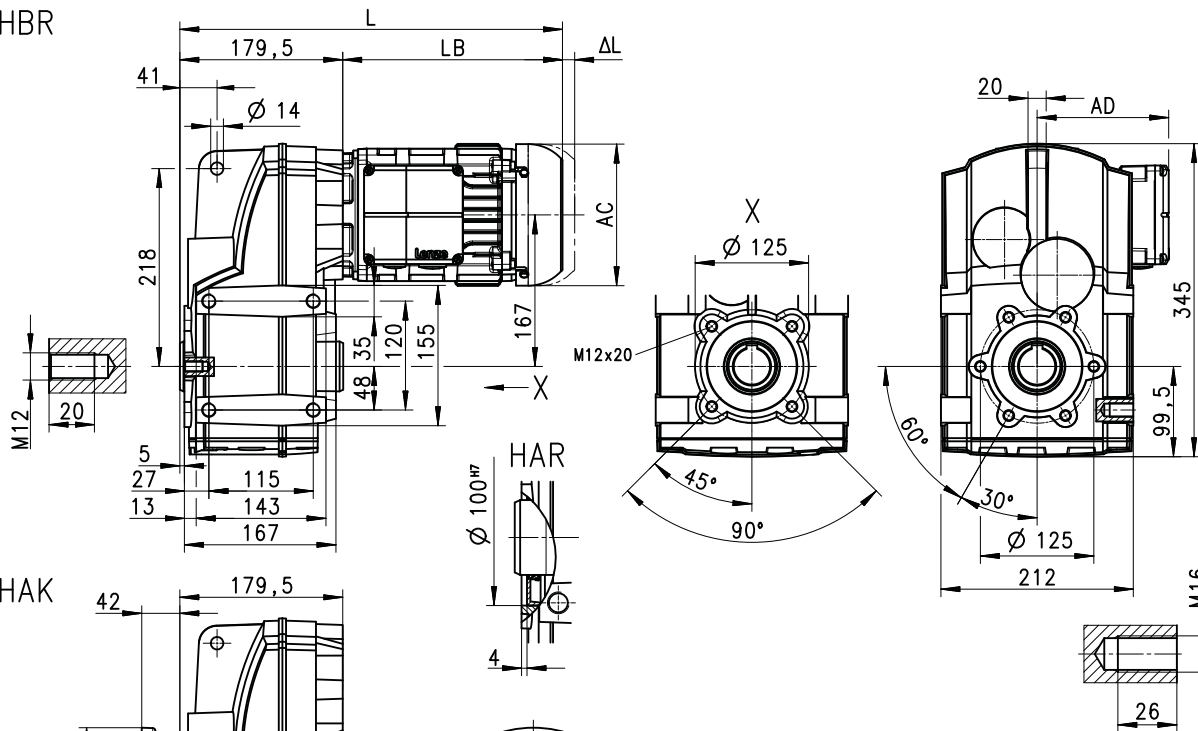
Technical data

Dimensions
Basic dimensions

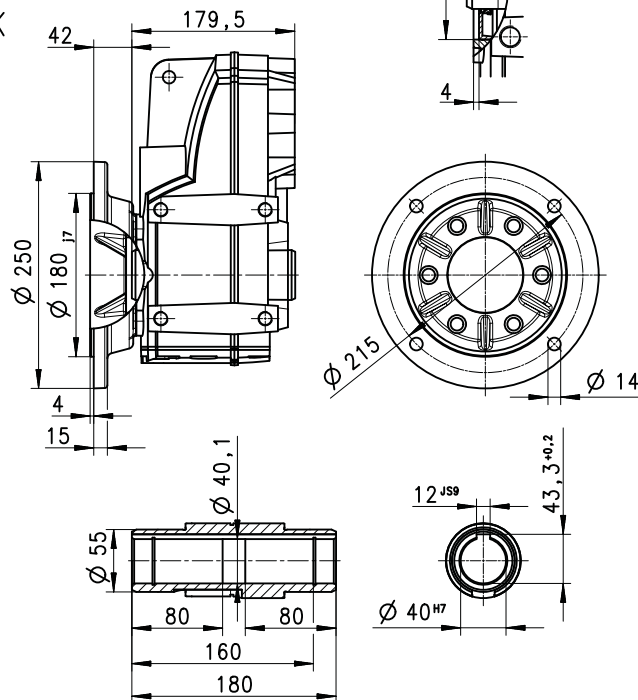
g500-S950, 2-/3-stage

Gearbox design: Hollow shaft, with foot (HBR/HAR/HAK)

HBR



HAK



8801225-00

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	368	398	422	464	528	540	604
Motor length	LB	mm	189	218	242	285	348	361	425
Motor diameter	AC	mm	123	139	156	177	194	220	258
Motor/connection distance	AD	mm	117	129	145	153	164	169	197

Δ L ▶ Additional lengths 143

Technical data

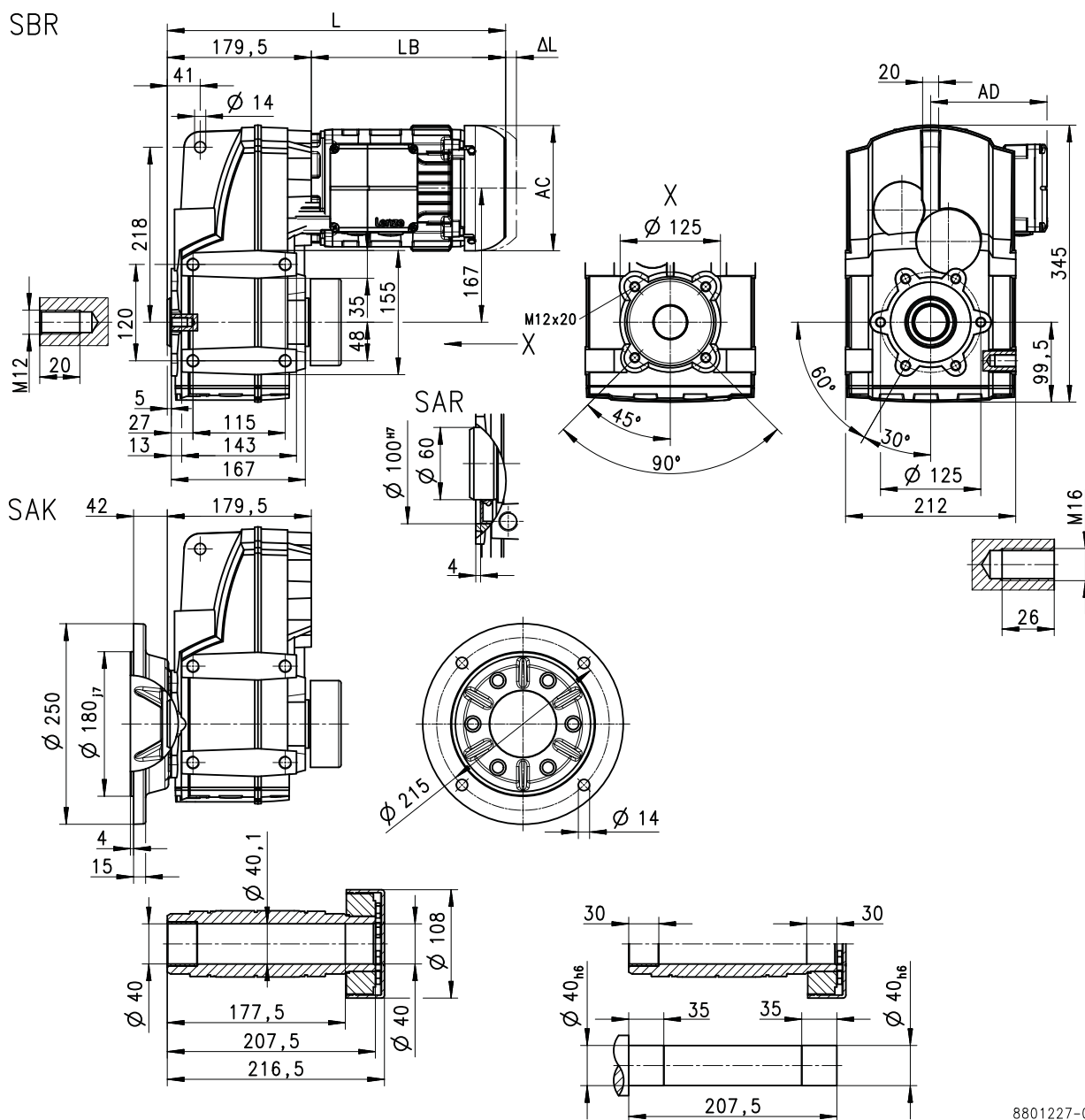
Dimensions
Basic dimensions



g500-S950, 2-/3-stage

Gearbox design: Hollow shaft with shrink disc, with foot (SBR/SAR/SAK)

SBR



8801227-01

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	368	398	422	464	528	540	604
Motor length	LB	mm	189	218	242	285	348	361	425
Motor diameter	AC	mm	123	139	156	177	194	220	258
Motor/connection distance	AD	mm	117	129	145	153	164	169	197

Δ L ▶ Additional lengths 143



Gearbox design: Solid shaft, with foot (VBR/VAR/VAK)

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	368	398	422	464	528	540	604
Motor length	LB	mm	189	218	242	285	348	361	425
Motor diameter	AC	mm	123	139	156	177	194	220	258
Motor/connection distance	AD	mm	117	129	145	153	164	169	197

129

Technical data

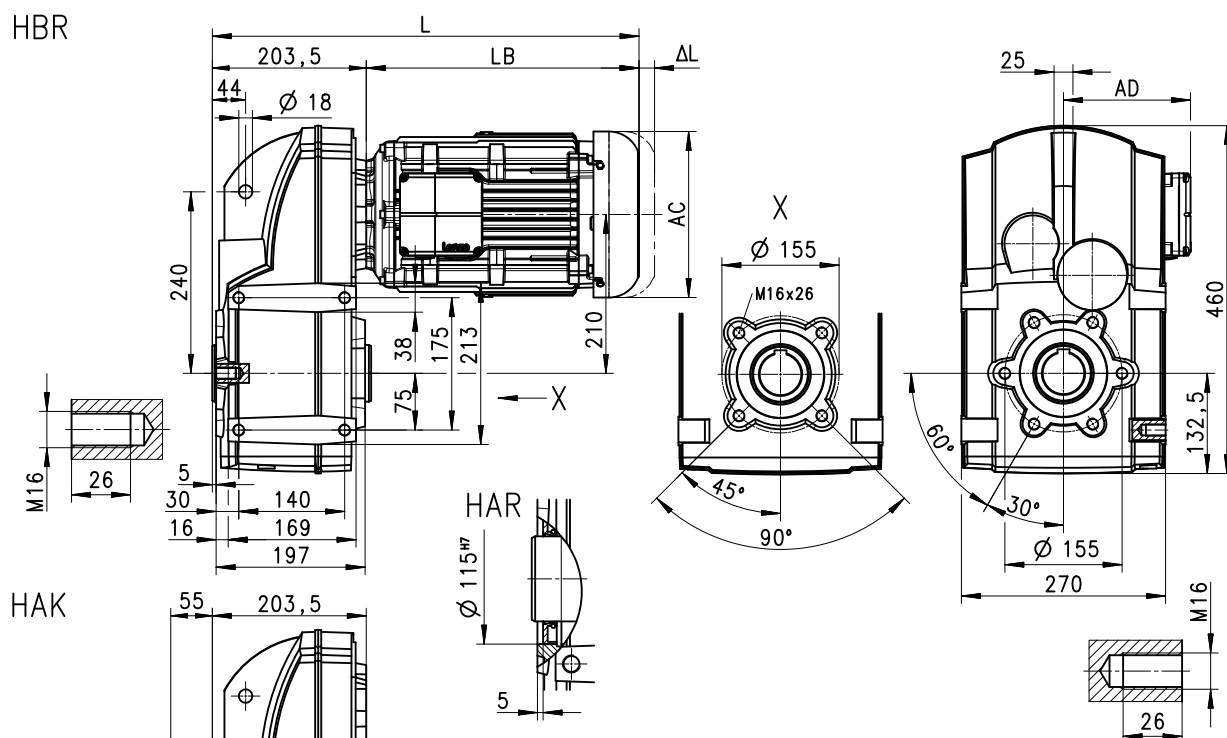
Dimensions
Basic dimensions



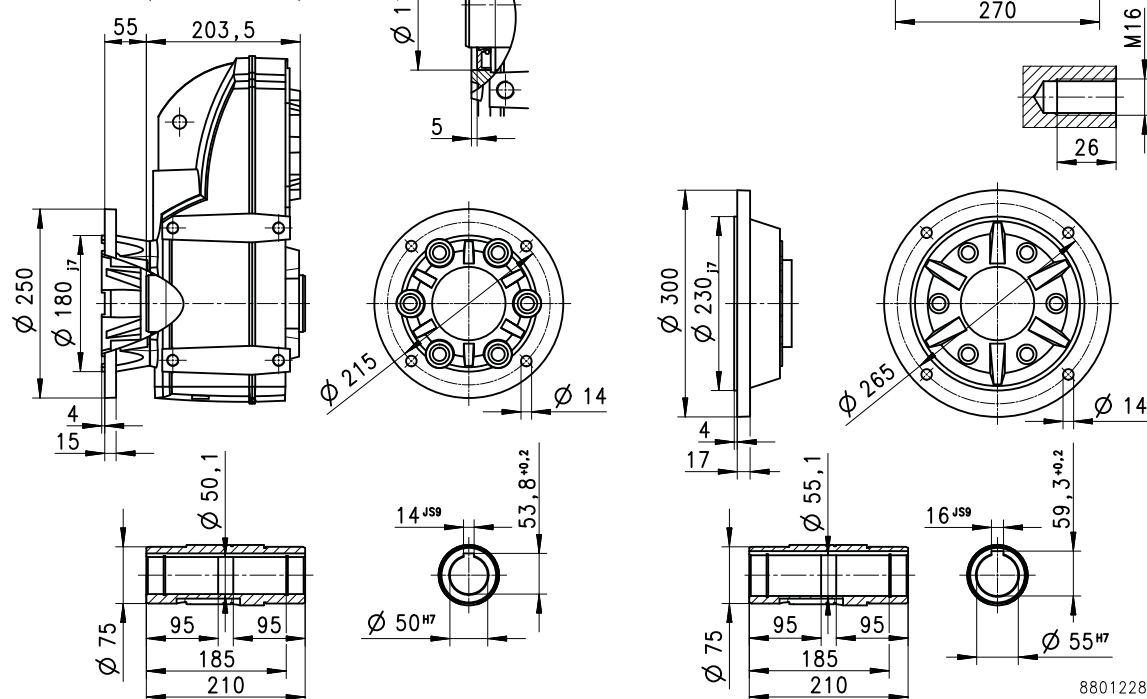
g500-S2100, 2-/3-stage

Gearbox design: Hollow shaft, with foot (HBR/HAR/HAK)

HBR



HAK



8801228-00

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	392	422	446	488	552	564	628
Motor length	LB	mm	189	218	242	285	348	361	425
Motor diameter	AC	mm	123	139	156	177	194	220	258
Motor/connection distance	AD	mm	117	129	145	153	164	169	197

Δ L ▶ Additional lengths 143



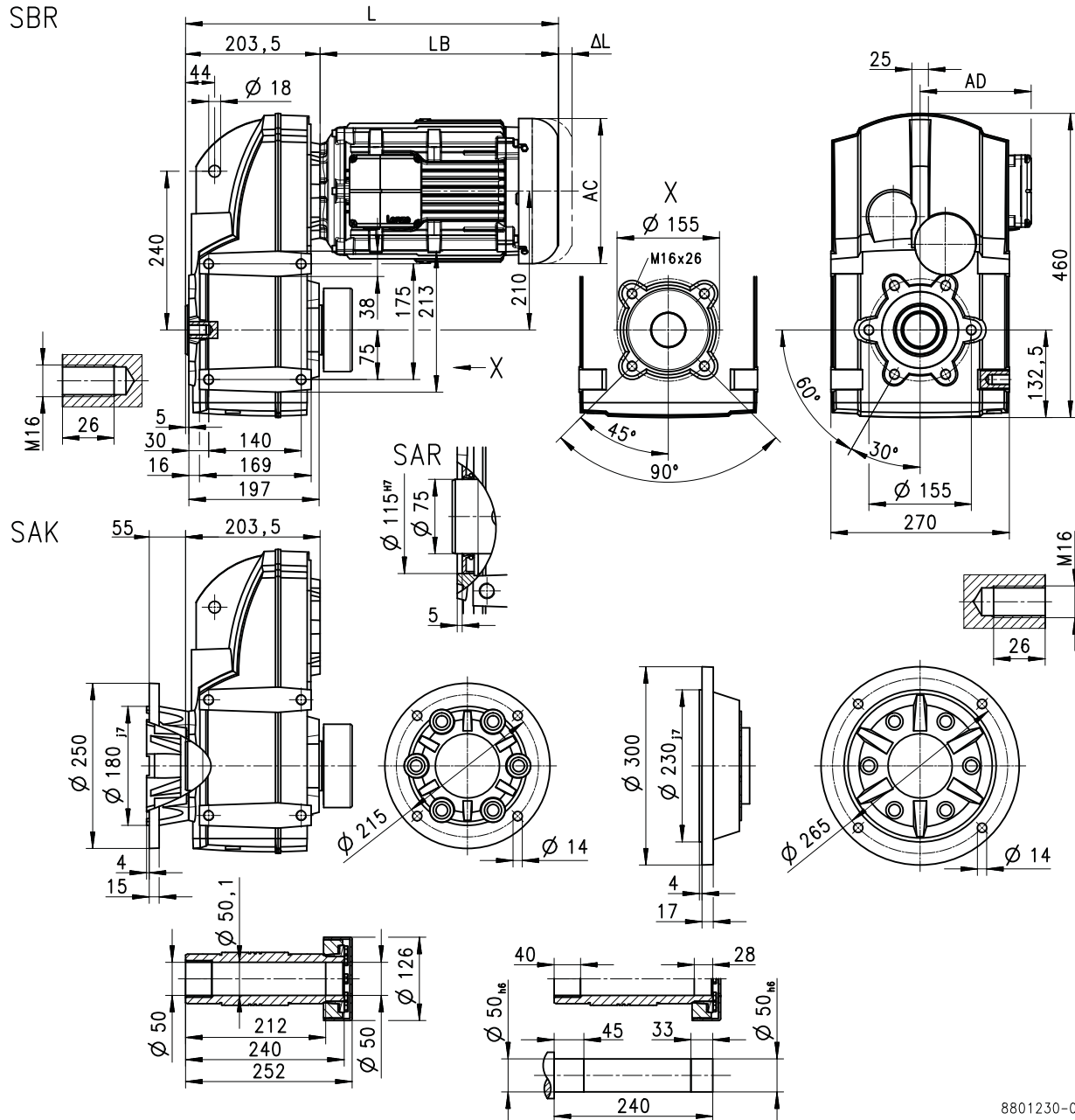
Technical data

Dimensions
Basic dimensions

g500-S2100, 2-/3-stage

Gearbox design: Hollow shaft with shrink disc, with foot (SBR/SAR/SAK)

SBR



8801230-01

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	392	422	446	488	552	564	628
Motor length	LB	mm	189	218	242	285	348	361	425
Motor diameter	AC	mm	123	139	156	177	194	220	258
Motor/connection distance	AD	mm	117	129	145	153	164	169	197

Δ L ▶ Additional lengths 143

Technical data

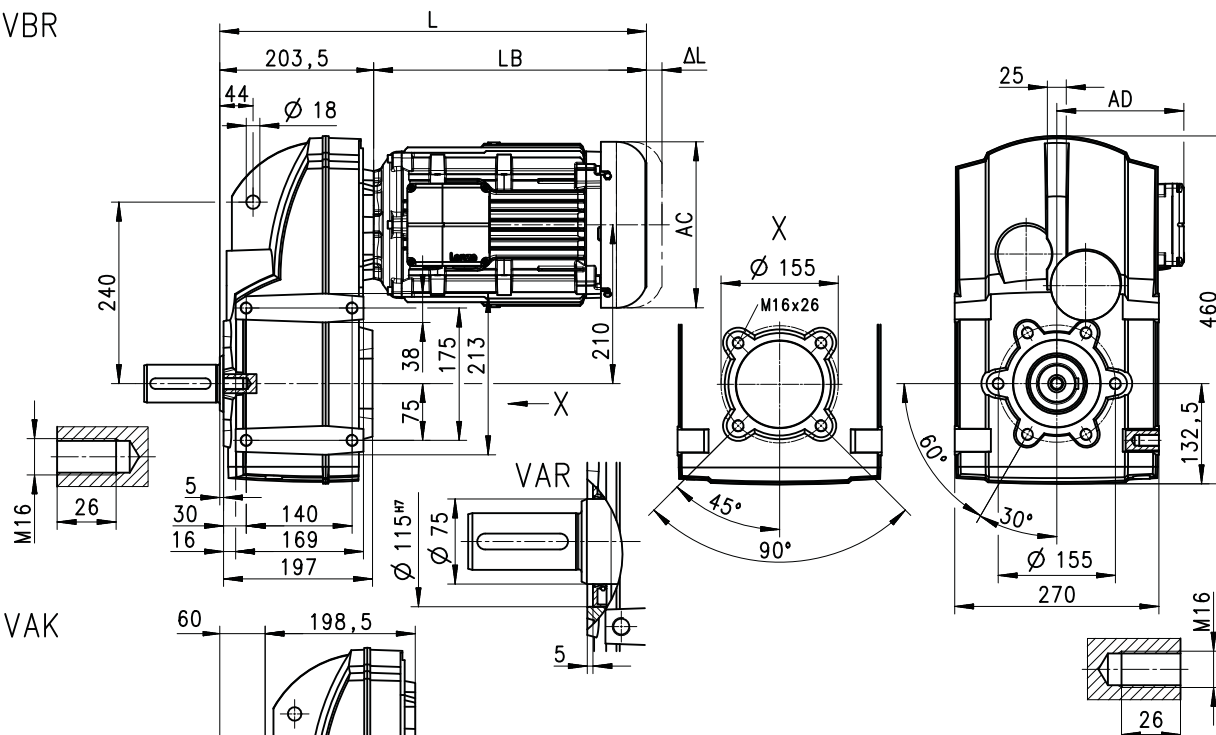
Dimensions
Basic dimensions



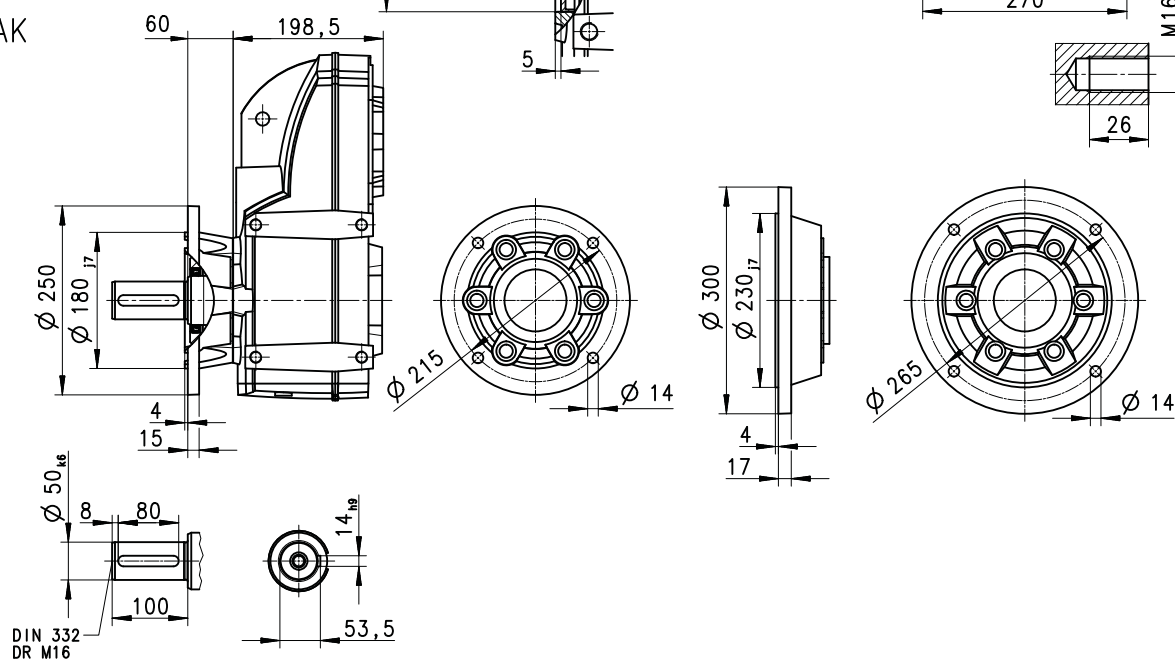
g500-S2100, 2-/3-stage

Gearbox design: Solid shaft, with foot (VBR/VAR/VAK)

VBR



VAK



8801229-00

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	392	422	446	488	552	564	628
Motor length	LB	mm	189	218	242	285	348	361	425
Motor diameter	AC	mm	123	139	156	177	194	220	258
Motor/connection distance	AD	mm	117	129	145	153	164	169	197

Δ L ▶ Additional lengths 143



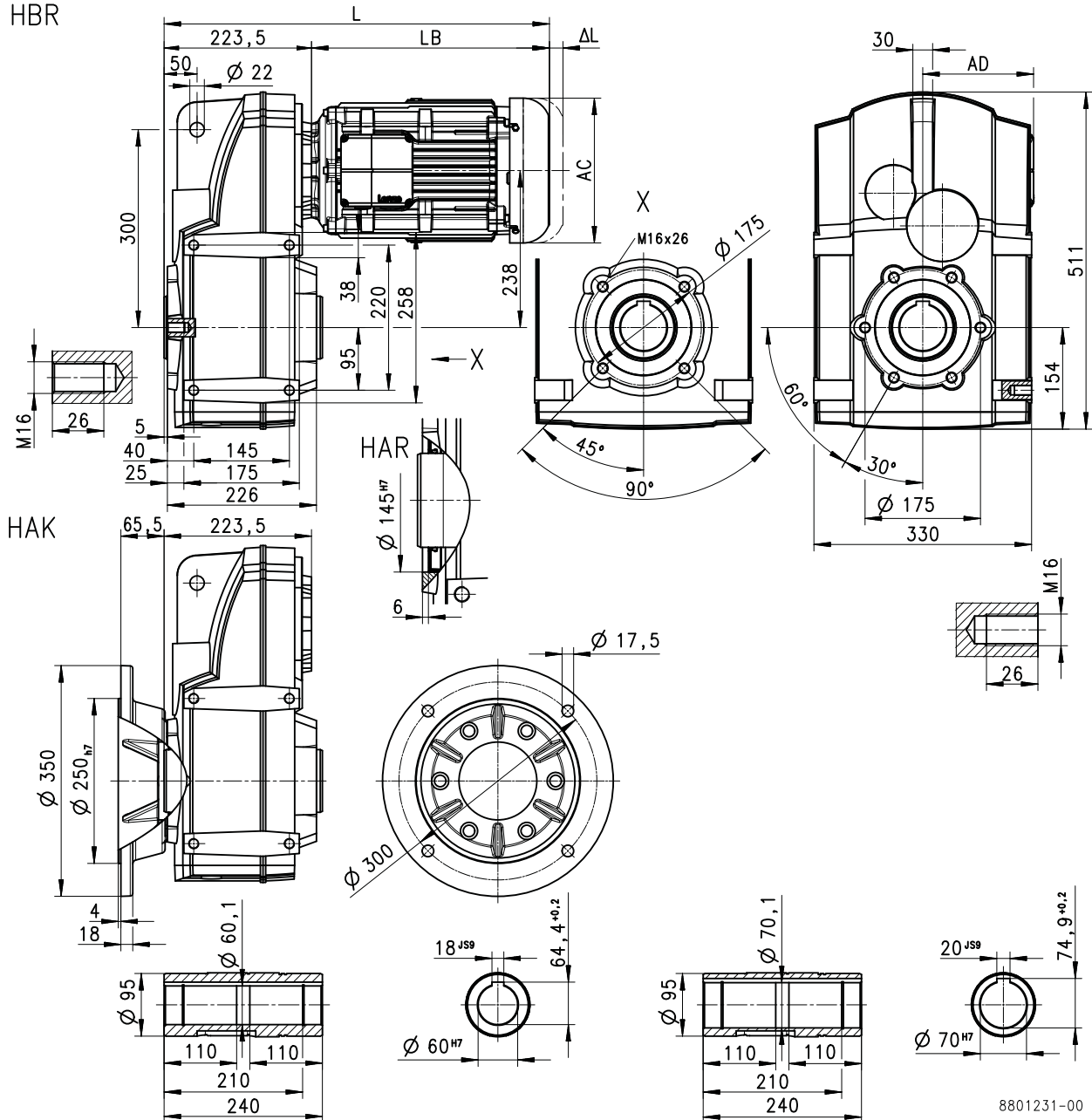
Technical data

Dimensions
Basic dimensions

g500-S3100, 2-/3-stage

Gearbox design: Hollow shaft, with foot (HBR/HAR/HAK)

HBR



8801231-00

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	412	442	466	508	572	584	648
Motor length	LB	mm	189	218	242	285	348	361	425
Motor diameter	AC	mm	123	139	156	177	194	220	258
Motor/connection distance	AD	mm	117	129	145	153	164	169	197

Δ L ▶ Additional lengths 143

Technical data

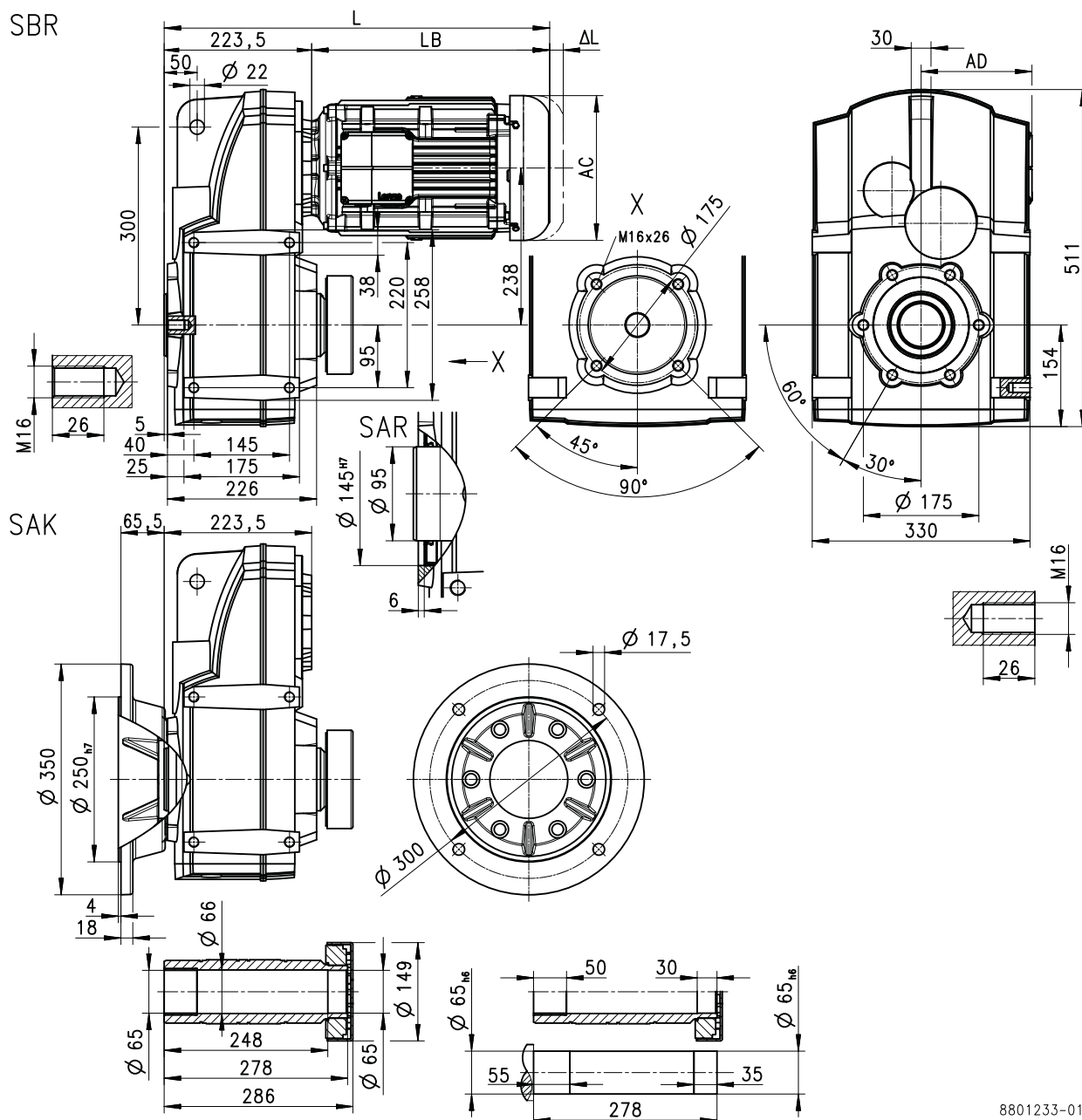
Dimensions
Basic dimensions



g500-S3100, 2-/3-stage

Gearbox design: Hollow shaft with shrink disc, with foot (SBR/SAR/SAK)

SBR



8801233-01

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	412	442	466	508	572	584	648
Motor length	LB	mm	189	218	242	285	348	361	425
Motor diameter	AC	mm	123	139	156	177	194	220	258
Motor/connection distance	AD	mm	117	129	145	153	164	169	197

Δ L ▶ Additional lengths 143



Gearbox design: Solid shaft, with foot (VBR/VAR/VAK)

[illegible]

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	412	442	466	508	572	584	648
Motor length	LB	mm	189	218	242	285	348	361	425
Motor diameter	AC	mm	123	139	156	177	194	220	258
Motor/connection distance	AD	mm	117	129	145	153	164	169	197

135

Technical data

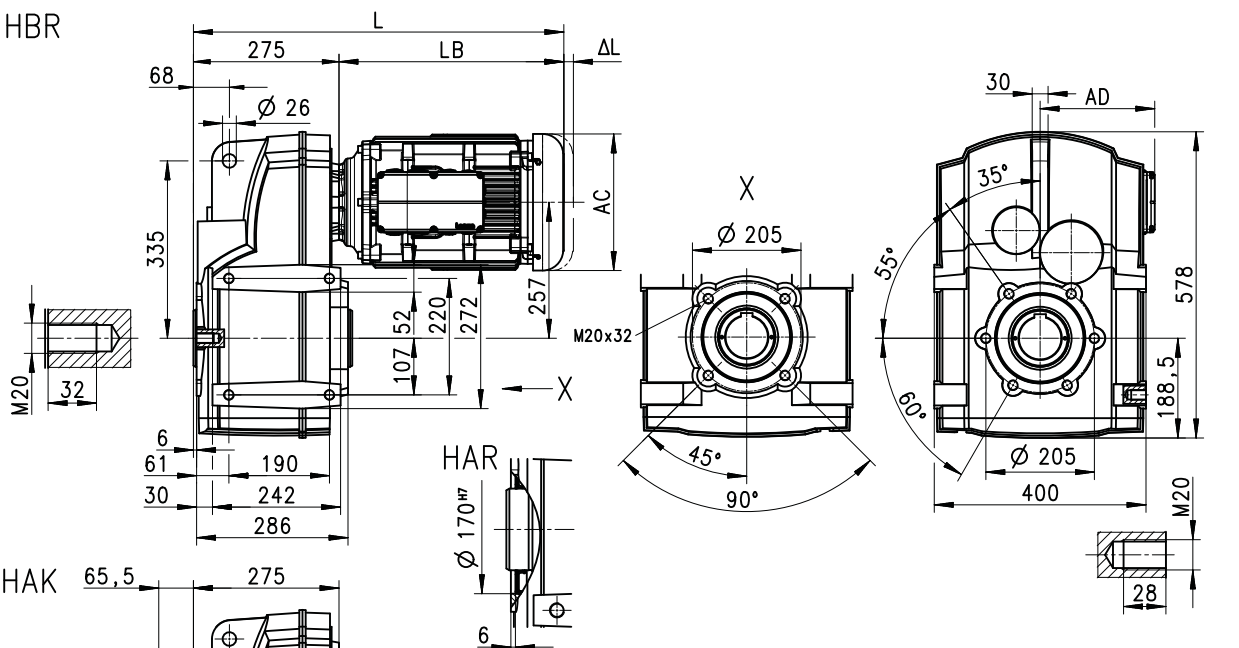
Dimensions
Basic dimensions



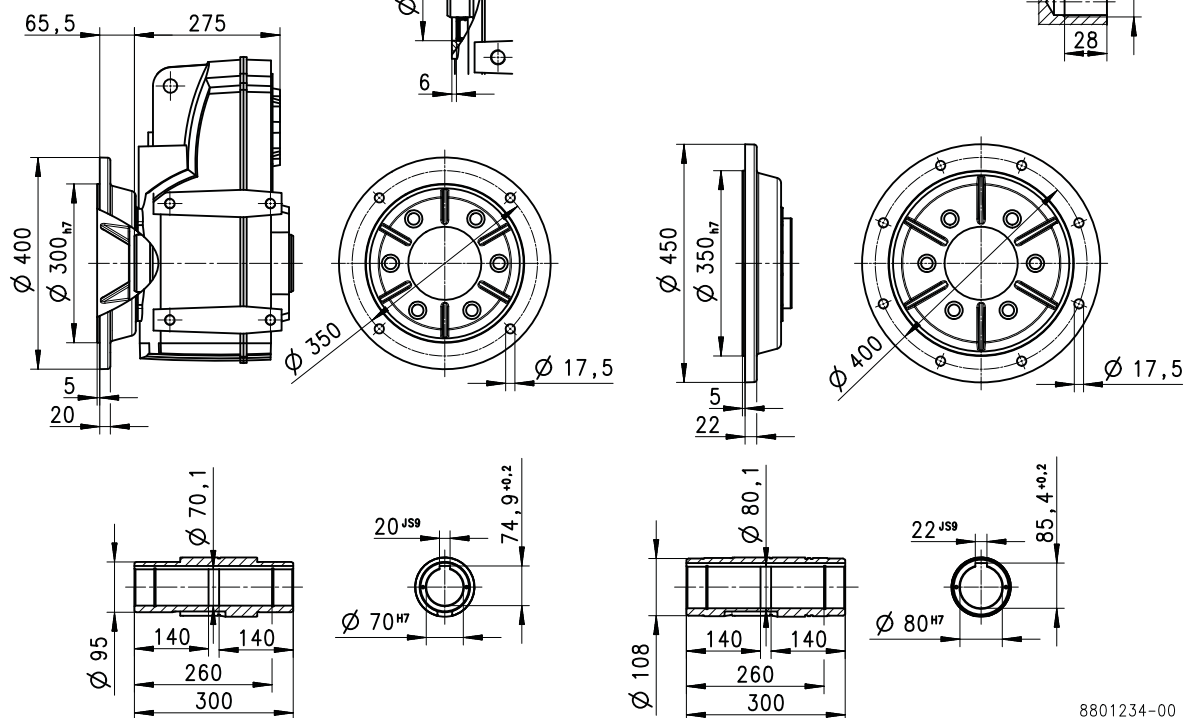
g500-S4500, 2-/3-stage

Gearbox design: Hollow shaft, with foot (HBR/HAR/HAK)

HBR



HAK



8801234-00

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	464	493	517	560	623	636	700
Motor length	LB	mm	189	218	242	285	348	361	425
Motor diameter	AC	mm	123	139	156	177	194	220	258
Motor/connection distance	AD	mm	117	129	145	153	164	169	197

Δ L ▶ Additional lengths 143

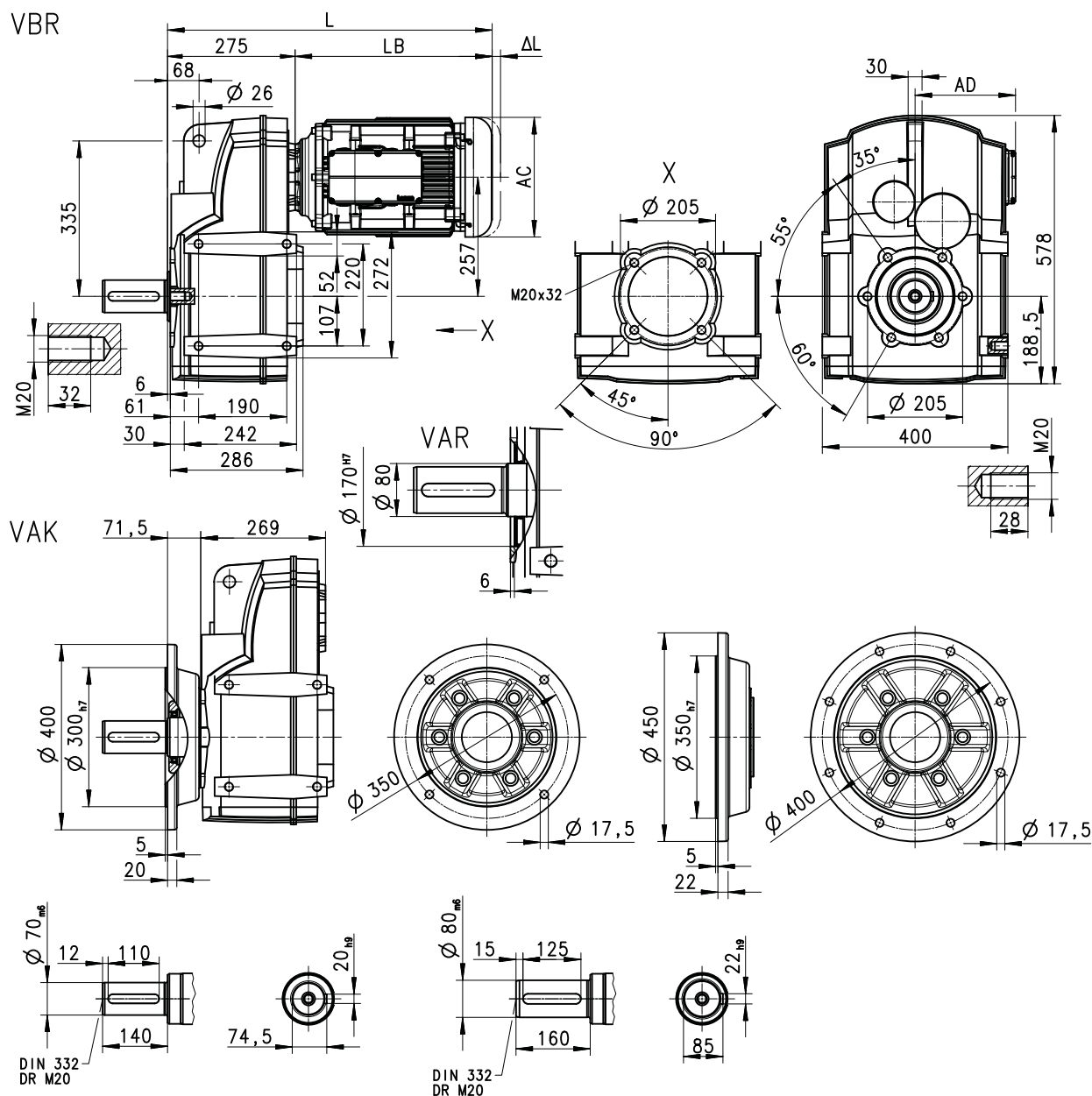
Technical data

Dimensions
Basic dimensions



g500-S4500, 2-/3-stage

Gearbox design: Solid shaft, with foot (VBR/VAR/VAK)



8801235-00

Motor series			m650-U						
Motor			063L04	071M04 071L04	080M04	090M04 090L04	100M04 100L04	112M04	132S04 132M04 132L04
Total length	L	mm	464	493	517	560	623	636	700
Motor length	LB	mm	189	218	242	285	348	361	425
Motor diameter	AC	mm	123	139	156	177	194	220	258
Motor/connection distance	AD	mm	117	129	145	153	164	169	197

Δ L ▶ [Additional lengths](#) 143



7.7.2 Gearbox with pre-stage

g500-S130, 3-stage

g500-S220 ... S4500, 4-stage

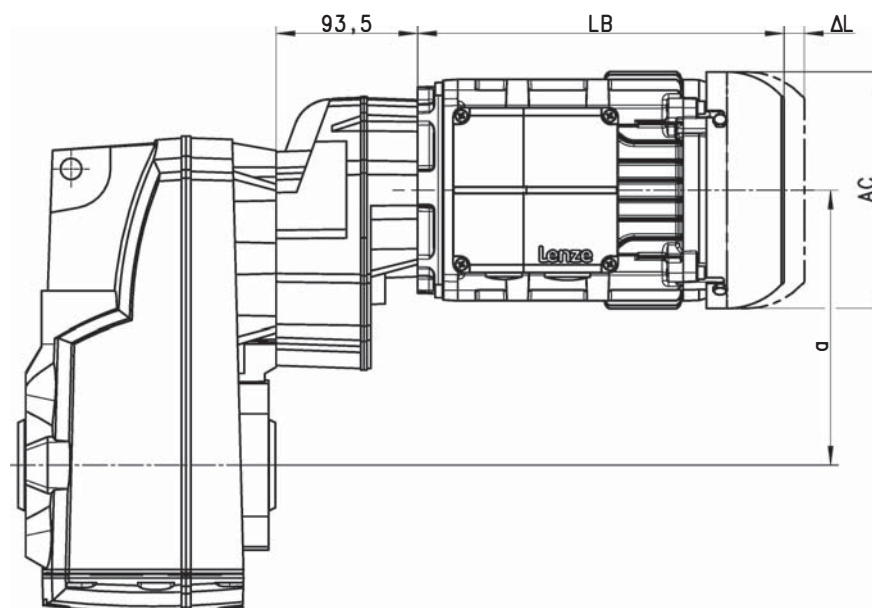


The geared motor dimensions can be found in the basic dimensions, except the total length "L" and the center distance "a".

► [Basic dimensions](#) 107

The total length "L" in the basic dimensions is extended by the 93.5 mm of the pre-stage.

Pay attention to the altered center distance "a" between the gearbox and motor shaft.



8801278-00

Gearboxes			S130	S220	S400	S660	S950	S2100	S3100	S4500
			3-stage	4-stage						
Center distance	a	mm	144	157	162	181	212	255	283	302

Technical data

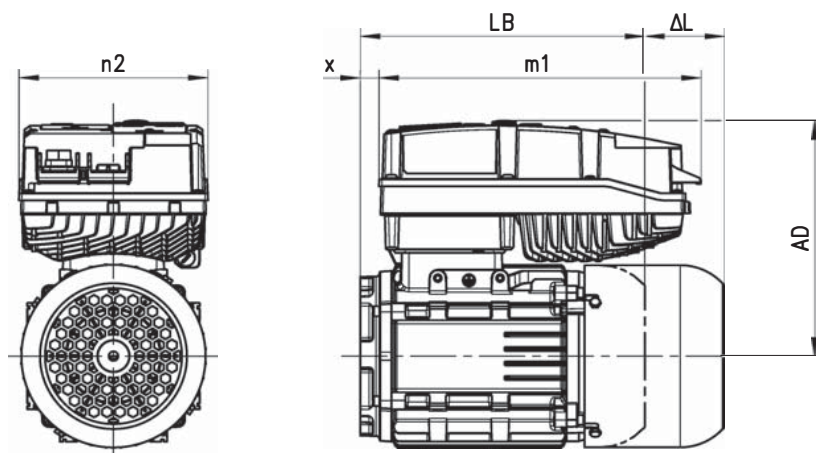
Dimensions
Integrated inverters



7.7.3 Integrated inverters

i550/i650 motec

Supply voltage 3x 400/480 V



8801826-01

Rated frequency 124 Hz



Technical data

Dimensions
Integrated inverters

Motor	i550 motec	AD	m1	n2	x
		g_1	m_1	n_2	x
		mm	mm	mm	mm
m650-U63/L4	i550-M0.75/400-3	179	265	160	11
m650-U63/L4	i550-M0.55/400-3	179	265	160	11
m650-U71/M4	i550-M1.1/400-3	190	265	160	21
m650-U71/M4	i550-M0.75/400-3	190	265	160	21
m650-U71/L4	i550-M1.5/400-3	190	265	160	21
m650-U71/L4	i550-M2.2/400-3	190	265	160	21
m650-U71/L4	i550-M1.1/400-3	190	265	160	21
m650-U80/M4	i550-M2.2/400-3	203	265	160	25
m650-U80/M4	i550-M1.5/400-3	203	265	160	25
m650-U80/M4	i550-M3.0/400-3	221	265	160	23
m650-U90/M4	i550-M2.2/400-3	211	265	160	44
m650-U90/M4	i550-M3.0/400-3	229	265	160	44
m650-U90/M4	i550-M4.0/400-3	229	265	160	44
m650-U90/L4	i550-M4.0/400-3	229	265	160	44
m650-U90/L4	i550-M5.5/400-3	229	265	160	44
m650-U90/L4	i550-M3.0/400-3	229	265	160	44
m650-U100/M4	i550-M5.5/400-3	239	265	160	34
m650-U100/M4	i550-M4.0/400-3	239	265	160	34
m650-U100/M4	i550-M7.5/400-3	264	362	211	21
m650-U100/L4	i550-M5.5/400-3	239	265	160	34
m650-U100/L4	i550-M7.5/400-3	264	362	211	21
m650-U100/L4	i550-M11/400-3	264	362	211	21
m650-U112/M4	i550-M11/400-3	269	362	211	39
m650-U112/M4	i550-M7.5/400-3	269	362	211	39
m650-U132/S4	i550-M11/400-3	289	362	211	48
m650-U132/S4	i550-M15/400-3	341	443	280	27
m650-U132/S4	i550-M18/400-3	341	443	280	27
m650-U132/M4	i550-M18/400-3	341	443	280	27
m650-U132/M4	i550-M22/400-3	341	443	280	27
m650-U132/M4	i550-M15/400-3	341	443	280	27
m650-U132/L4	i550-M22/400-3	341	443	280	27
m650-U132/L4	i550-M30/400-3	341	443	280	27
m650-U132/L4	i550-M18/400-3	341	443	280	27

Technical data

Dimensions
Integrated inverters



Motor	i650 motec	AD	m1	n2	x
		g_1	m_1	n_2	x
		mm	mm	mm	mm
m650-U63/L4	i650-M0.75/400-3	179	265	160	11
m650-U63/L4	i650-M0.55/400-3	179	265	160	11
m650-U71/M4	i650-M1.1/400-3	190	265	160	21
m650-U71/M4	i650-M0.75/400-3	190	265	160	21
m650-U71/L4	i650-M1.5/400-3	190	265	160	21
m650-U71/L4	i650-M2.2/400-3	190	265	160	21
m650-U71/L4	i650-M1.1/400-3	190	265	160	21
m650-U80/M4	i650-M2.2/400-3	203	265	160	25
m650-U80/M4	i650-M3.0/400-3	221	265	160	23
m650-U80/M4	i650-M1.5/400-3	203	265	160	25
m650-U90/M4	i650-M3.0/400-3	229	265	160	44
m650-U90/M4	i650-M4.0/400-3	229	265	160	44
m650-U90/M4	i650-M2.2/400-3	211	265	160	44
m650-U90/L4	i650-M4.0/400-3	229	265	160	44
m650-U90/L4	i650-M5.5/400-3	229	265	160	44
m650-U90/L4	i650-M3.0/400-3	229	265	160	44
m650-U100/M4	i650-M5.5/400-3	239	265	160	34
m650-U100/M4	i650-M7.5/400-3	264	362	211	21
m650-U100/M4	i650-M4.0/400-3	239	265	160	34
m650-U100/L4	i650-M7.5/400-3	264	362	211	21
m650-U100/L4	i650-M11/400-3	264	362	211	21
m650-U100/L4	i650-M5.5/400-3	239	265	160	34
m650-U112/M4	i650-M11/400-3	269	362	211	39
m650-U112/M4	i650-M7.5/400-3	269	362	211	39
m650-U132/S4	i650-M15/400-3	341	443	280	27
m650-U132/S4	i650-M18/400-3	341	443	280	27
m650-U132/S4	i650-M11/400-3	289	362	211	48
m650-U132/M4	i650-M18/400-3	341	443	280	27
m650-U132/M4	i650-M22/400-3	341	443	280	27
m650-U132/M4	i650-M15/400-3	341	443	280	27
m650-U132/L4	i650-M22/400-3	341	443	280	27
m650-U132/L4	i650-M30/400-3	341	443	280	27
m650-U132/L4	i650-M18/400-3	341	443	280	27

Dimensions LB and ΔL ▶ [Basic dimensions](#) 107



7.7.4 Additional lengths

Self-ventilated motors

Motor			m650-U						
			63/L4	71/M4	80/M4	90/M4	100/M4	112/M4	132/S4
				71/L4		90/L4	100/L4		132/M4
									132/L4
Without feedback/brake									
Protection class IP54/IP55	Δ L	mm	0	0	0	0	0	0	0
With integrated feedback									
Protection class IP54/IP55	Δ L	mm	23	9	7	7	13	0	9
With mounted feedback									
Protection class IP54/IP55	Δ L	mm	85	75	68	63	74	77	91
With spring-applied brake									
Protection class IP54/IP55	Δ L	mm	61	60	68	63	74	77	91
With spring-applied brake and integrated feedback									
Protection class IP54/IP55	Δ L	mm	61	60	68	63	74	77	91
With spring-applied brake and mounted feedback									
Protection class IP54/IP55	Δ L	mm	135	128	136	131	145	148	162



7.8 Weights

7.8.1 Basic weights



The basic weights are listed in the selection tables.

Weights with lubricant for mounting position M1, all data approximate values. The exact values can be found in the delivery documents

► [Selection tables](#)  70

Observe ► [Additional weights](#)  144!

7.8.2 Additional weights



Add the individual additional weights to the basic weight depending on the design.

Gearboxes

Gearboxes			g500-S130	g500-S220	g500-S400	g500-S660
Solid shaft	m	kg	0.5	0.5	1.7	2.5
Shrink disc	m	kg	0.2	0.4	0.6	0.6
Foot	m	kg	1.7	1.8	3.3	4.3
Flange	m	kg	0.4	0.4	0.9	1.7
Torque plate						
Rubber buffers	m	kg	0.1	0.1	0.1	0.1
Shaft cover						
Shrink disc cover	m	kg	0.1	0.1	0.1	0.1

Gearboxes			g500-S950	g500-S2100	g500-S3100	g500-S4500
Solid shaft	m	kg	3.0	5.5	8.4	19.0
Shrink disc	m	kg	1.2	1.7	2.3	4.3
Foot	m	kg		-	-	-
Flange	m	kg	6.0	11.5	15.0	29.0
Torque plate						
Rubber buffers	m	kg	0.1	0.5	0.5	0.5
Shaft cover						
Shrink disc cover	m	kg	0.1	0.2	0.3	0.4

Motors

Motor			m650-U						
			63/L4	71/M4 71/L4	80/M4	90/M4 90/L4	100/M4 100/L4	112/M4	132/S4 132/M4 132/L4
Self-ventilated fan cover									
Spring-applied brake									
06	m	kg	1.5	1.5					
08	m	kg			2.2	2.2			
10	m	kg				3.9	3.9		
12	m	kg						5.6	
14	m	kg							8.5
16	m	kg							
18	m	kg							
20	m	kg							
Manual release lever	m	kg	0.1	0.1	0.2	0.2	0.2	0.4	0.5
Feedback	m	kg	0.5	0.5	0.5	0.5	0.5	0.5	0.5



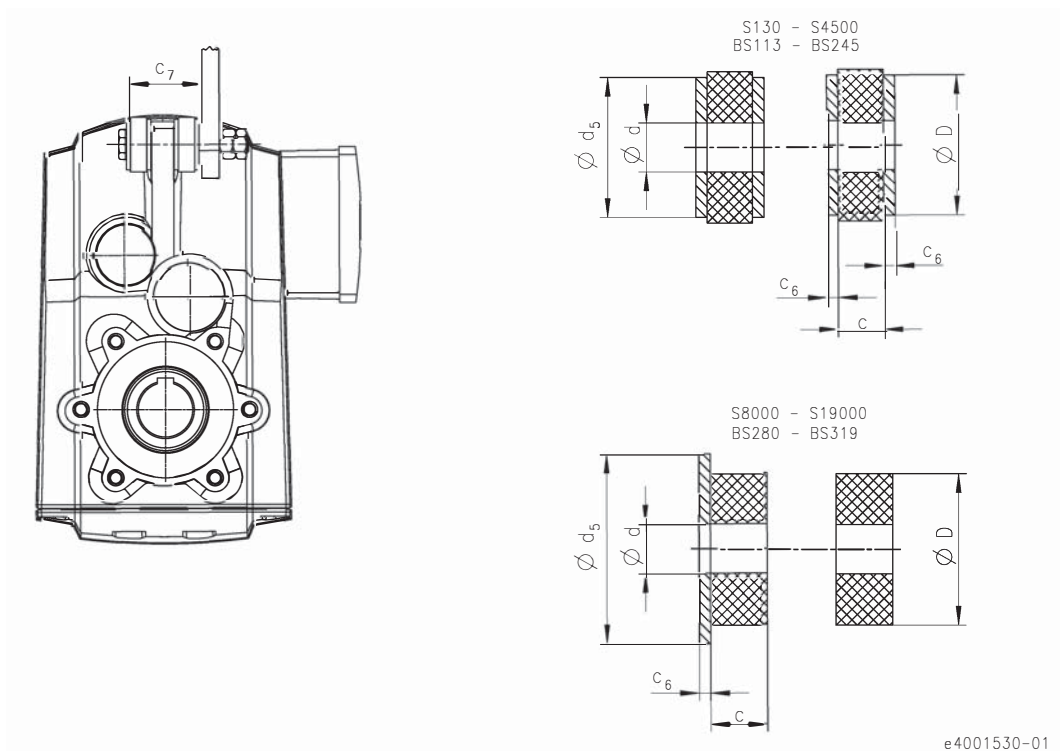
8 Product extensions

8.1 Torque plates

Torque support is usually provided by means of the foot or flange.

The integrated torque plate is another simple possibility. In this case, torque support is provided only via one point and is suitable for shaft-mounted gearboxes, among other things. Moreover, suitable rubber buffers ensure stress-free installation and absorb any slight impacts.

Rubber buffer for torque plate



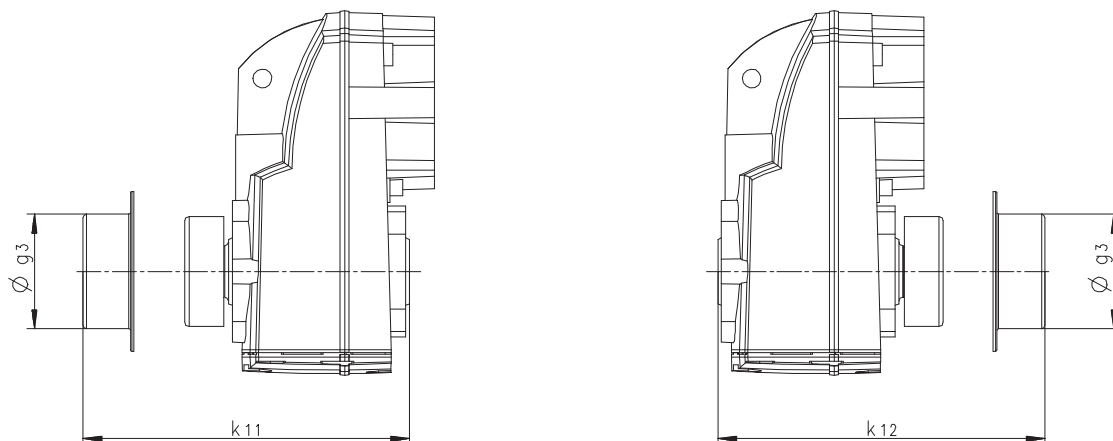
Gearboxes	Dimensions					
	d	D	d ₅	c	c ₆	c ₇
	mm	mm	mm	mm	mm	mm
g500-S130	11.0	30.0	30	12.0	2.50	45.0
g500-S220	11.0	30.0	30	12.0	2.50	45.0
g500-S400	13.0	40.0	37	12.0	3.00	49.0
g500-S660	13.0	40.0	37	12.0	3.00	52.0
g500-S950	13.0	40.0	37	12.0	3.00	56.0
g500-S2100	17.0	50.0	50	24.0	3.00	85.0
g500-S3100	21.0	60.0	60	24.0	4.00	94.0
g500-S4500	26.0	72.0	72	24.0	5.00	98.0



8.2 Shaft covers

The shrink disc cover is provided for the shrink disc to be protected from contact.

Shrink disc cover



Gearboxes	Dimensions		
	G_3	k_{11}	k_{12}
	mm	mm	mm
g500-S130	63.0	132	132
g500-S220	76.0	152	152
g500-S400	90.0	182	182
g500-S660	90.0	200	202
g500-S950	110	219	219
g500-S2100	127	252	252
g500-S3100	155	290	290
g500-S4500	188	355	357



8.3 Motor connection

8.3.1 Connection options

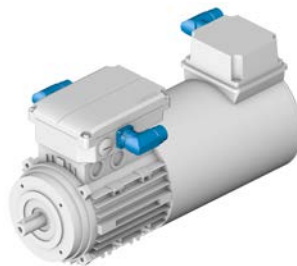


The motors are equipped with a terminal box as standard.

Alternatively, various connectors can be selected for quick commissioning or maintenance.



Terminal box with cable gland



Terminal box with M23 connector



Han connector

The three-phase motors are intended for operation on the inverter.

Frequency inverter operation

For frequency inverter operation, the cut-off frequencies have been set to the following rated voltages:

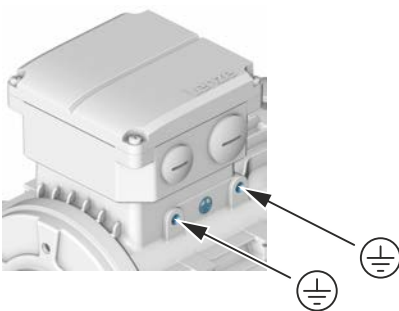
Rated frequency	Rated voltage	Circuit
Hz	V	
124	400	Y

Second ground connection on the motor

According to the EN 61800-5-1 standard, additional measures are required for the protective earth connection if the leakage current is greater than 3.5 mA for alternating current or greater than 10 mA for direct current.

► [Important notes](#) 48

A possible measure is the execution via a second ground connection.



Scope of delivery when a second ground connection is selected:

- Toothed lock washer
- Washer
- Fixing screw



An additional grounding cable is not included in the scope of delivery.

The dimensioning of the grounding is done by the customer.

Product extensions

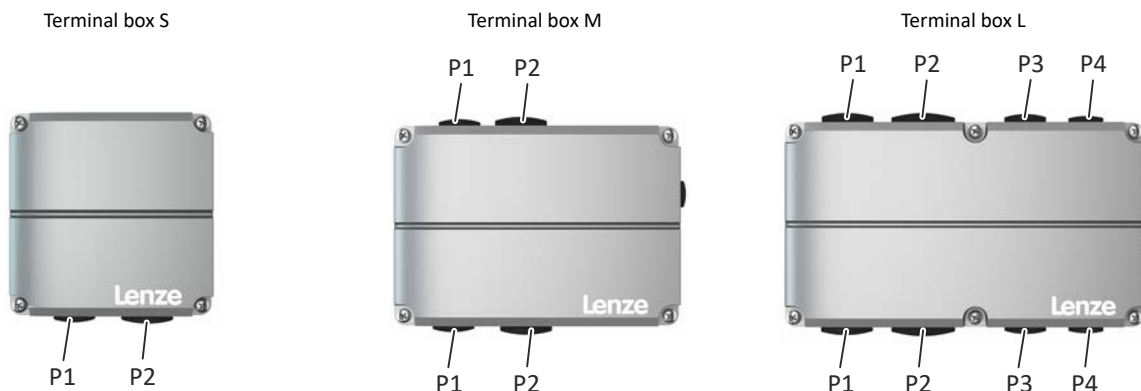
Motor connection
Assignment of the terminal boxes



8.3.2 Assignment of the terminal boxes

Depending on the product extension of the motor, different terminal box sizes (S, M or L) are used.

The M23 connectors are mounted on the terminal boxes (S, M and L) in the positions described.

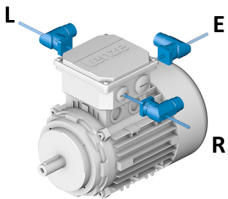


Motor	m650-U						
	63/L4	71/M4 71/L4	80/M4	90/M4 90/L4	100/M4 100/L4	112/M4	132/S4 132/M4 132/L4
Without product extensions							
Terminal box	S	S	S	S	S	S	L
Power: M23 connector	P1	P1	P1	P1	P1	P1	P1
Product extension - brake							
Terminal box	M	M	M	M	M	M	L
Power + brake: M23 connector	P2	P2	P1	P1	P1	P1	P1
Product extension - brake + feedback							
Terminal box	L	L	L	L	L	L	L
Power + brake: M23 connector	P1	P1	P1	P1	P1	P1	P1
Feedback: M23 connector	P3	P3	P3	P3	P3	P3	P3
Feedback: M12 connector	P4	P4	P4	P4	P4	P4	P4



Positions of the connectors

Positions on the motor terminal box



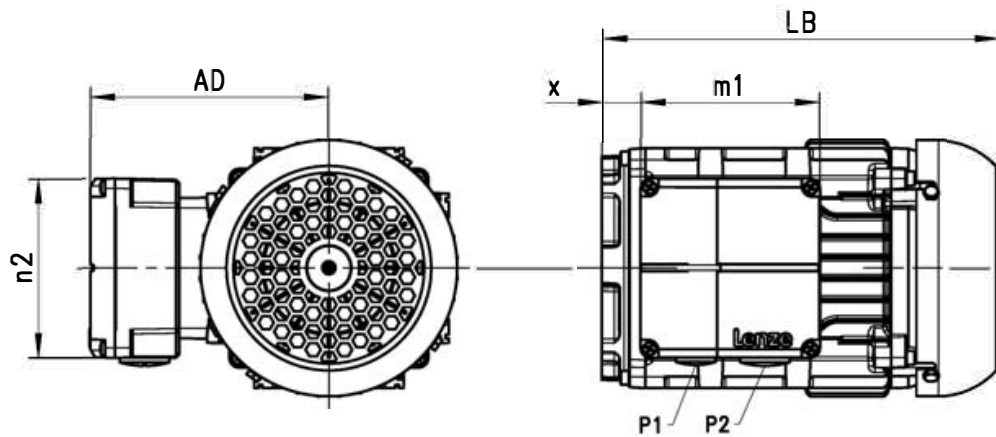
Terminal box	Positions	Note
Motor terminal box S		
Cable glands	L, E or R	
M23 connector: Power	L, E or R	
Motor terminal box M		
Cable glands	L and R	
M23 connector: Power/brake	L or R	
Motor terminal box L		
Cable glands	L and R	The plug connectors for power and brake can be arranged on the same side or on the opposite side
M23 connector: Power/brake	L or R	

Product extensions

Motor connection
Assignment of the terminal boxes



Dimensions of "S" power terminal box



8801784 00

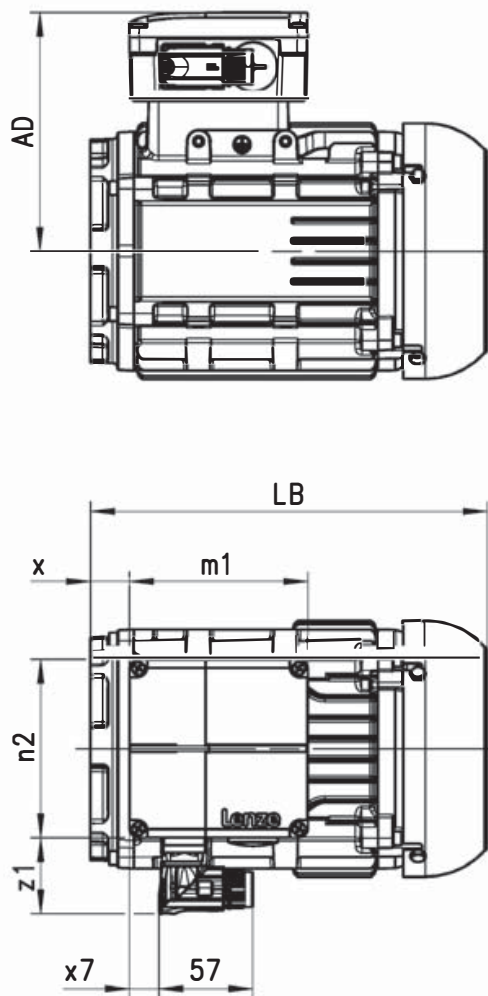
Motor		m650-U					
		63/L4	71/M4 71/L4	80/M4	90/M4 90/L4	100/M4 100/L4	112/M4
Motor terminal box							
AD	mm	117	128	145	153	163	168
x	mm	22	17	24	30	39	45
m ₁	mm	87	87	109	109	109	109
n ₂	mm	87	87	109	109	109	109
P ₁	mm	M20x1.5	M20x1.5	M20x1.5	M20x1.5	M20x1.5	M20x1.5
P ₂	mm	-	-	M25x1.5	M25x1.5	M25x1.5	M25x1.5

Dimensions LB ▶ [Basic dimensions](#) 107

Dimensions Δ L ▶ [Additional lengths](#) 143



Dimensions of "S" power terminal box with M23 connector



8801787-00

Motor		m650-U					
		63/L4	71/M4 71/L4	80/M4	90/M4 90/L4	100/M4 100/L4	112/M4
Motor terminal box							
AD	mm	117	128	145	153	163	168
x	mm	22	17	24	30	39	45
m ₁	mm	87	87	109	109	109	109
n ₂	mm	87	87	109	109	109	109
ICN connector Power							
x ₇	mm	13	13	18	18	18	18
z ₁	mm	42	42	42	42	42	42

Dimensions LB ▶ [Basic dimensions](#) 107

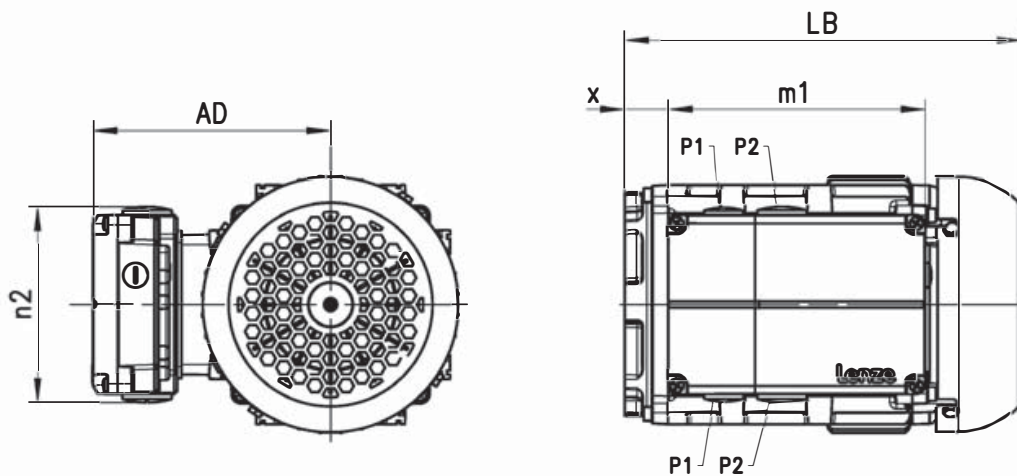
Dimensions Δ L ▶ [Additional lengths](#) 143

Product extensions

Motor connection
Assignment of the terminal boxes



Dimensions of "M" power terminal box



8801785-00

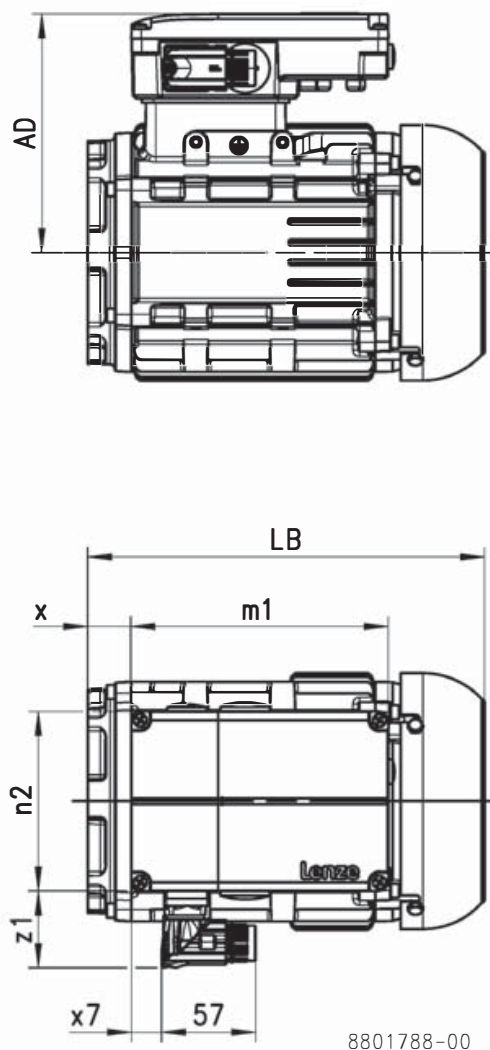
Motor		m650-U					
		63/L4	71/M4 71/L4	80/M4	90/M4 90/L4	100/M4 100/L4	112/M4
Motor terminal box							
AD	mm	113	124	145	153	163	168
x	mm	21	16	27	34	43	49
m ₁	mm	141	141	157	157	157	157
n ₂	mm	110	110	110	110	110	110
P ₁	mm	M16x1.5	M16x1.5	M20x1.5	M20x1.5	M20x1.5	M20x1.5
P ₂	mm	M20x1.5	M20x1.5	M25x1.5	M25x1.5	M25x1.5	M25x1.5

Dimensions LB ▶ [Basic dimensions](#) 107

Dimensions Δ L ▶ [Additional lengths](#) 143



Dimensions of "M" power terminal box with M23 connector



8801788-00

Motor		m650-U					
		63/L4	71/M4 71/L4	80/M4	90/M4 90/L4	100/M4 100/L4	112/M4
Motor terminal box							
AD	mm	113	124	145	153	163	168
x	mm	21	16	27	34	43	49
m ₁	mm	141	141	157	157	157	157
n ₂	mm	110	110	110	110	110	110
ICN connector Power/brake							
x ₇	mm	45.3	45.3	18	18	18	18
z ₁	mm	42	42	42	42	42	42
ICN connector Feedback							
x ₇	mm	45.3	45.3	53.5	53.5	53.5	53.5
z ₁	mm	42	42	46	46	46	46

Dimensions LB ► [Basic dimensions](#) 107

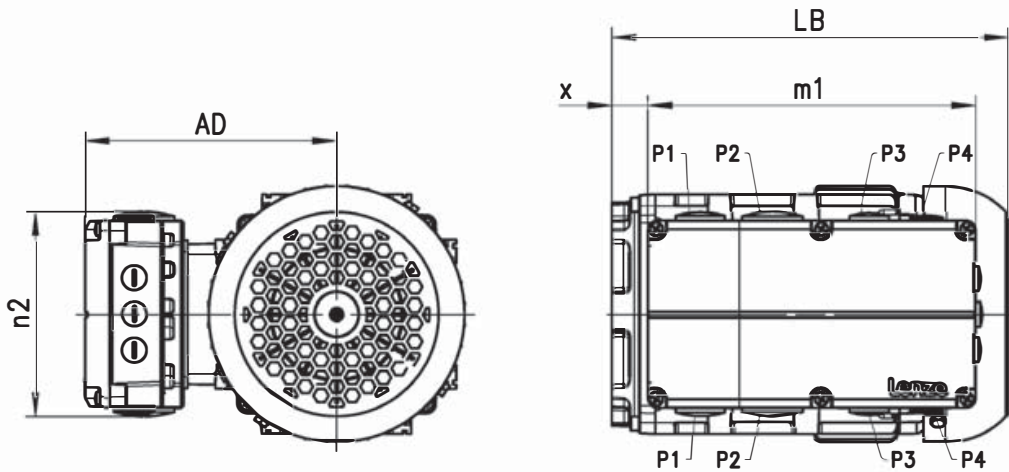
Dimensions Δ L ► [Additional lengths](#) 143

Product extensions

Motor connection
Assignment of the terminal boxes



Dimensions of "L" power terminal box



8801786-00

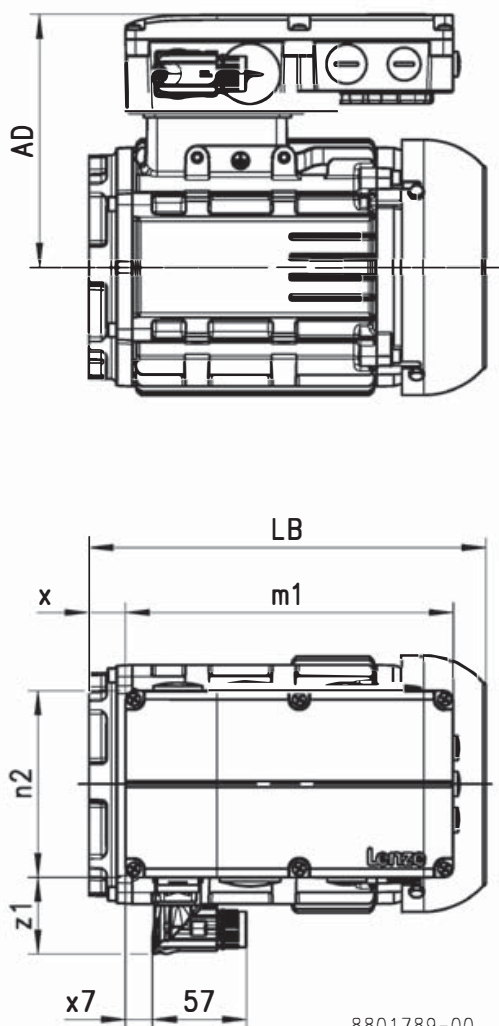
Motor		m650-U						
		63/L4	71/M4 71/L4	80/M4	90/M4 90/L4	100/M4 100/L4	112/M4	132/S4 132/M4 132/L4
Motor terminal box								
AD	mm	113	141	154	162	172	177	197
x	mm	9	4	22	29	39	44	73
m ₁	mm	141	200	200	200	200	200	200
n ₂	mm	110	114	114	114	114	114	114
P ₁	mm	M25x1.5	M25x1.5	M25x1.5	M25x1.5	M25x1.5	M25x1.5	M25x1.5
P ₂	mm	M32x1.5	M32x1.5	M32x1.5	M32x1.5	M32x1.5	M32x1.5	M32x1.5
P ₃	mm	M20x1.5	M20x1.5	M20x1.5	M20x1.5	M20x1.5	M20x1.5	M20x1.5
P ₄	mm	M16x1.5	M16x1.5	M16x1.5	M16x1.5	M16x1.5	M16x1.5	M16x1.5

Dimensions LB ▶ [Basic dimensions](#) 107

Dimensions Δ L ▶ [Additional lengths](#) 143



Dimensions of "L" power terminal box with M23 connector



8801789-00

Motor		m650-U						
		63/L4	71/M4 71/L4	80/M4	90/M4 90/L4	100/M4 100/L4	112/M4	132/S4 132/M4 132/L4
Motor terminal box								
AD	mm	113	141	154	162	172	177	197
x	mm	9	4	22	29	39	44	73
m ₁	mm	141	200	200	200	200	200	200
n ₂	mm	110	114	114	114	114	114	114
ICN connector Power/brake								
x ₇	mm	16	16	16	16	16	16	16
z ₁	mm	46	46	46	46	46	46	46
ICN connector Feedback								
x ₇	mm	120	120	120	120	120	120	120
z ₁	mm	42	42	42	42	42	42	42

Dimensions LB ▶ [Basic dimensions](#) 107

Dimensions Δ L ▶ [Additional lengths](#) 143



8.3.3 Assignment of the connectors Han

The power, brake and temperature monitoring can be connected in the Han connector.

The Han-Modular versions are available with two power modules (16 A or 40 A).

	A rectifier can also be connected to the Han-Modular connector.
	Feedback in conjunction with the Han plug connector or the integrated i550/i650 motec is only available with the IG128-24V-H add-on incremental encoder (with 0.5 m cable and M12 plug connector).

Motor	m650-U						
	63/L4	71/M4 71/L4	80/S4 80/M4	90/M4 90/L4	100/M4 100/L4	112/M4	132/S4 132/M4 132/L4
Han-Modular connector							
Connection: • Power • Brake • Temperature monitoring TK0	•	•	•	•	•	•	•

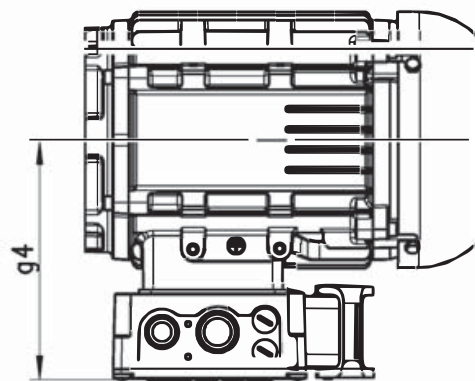
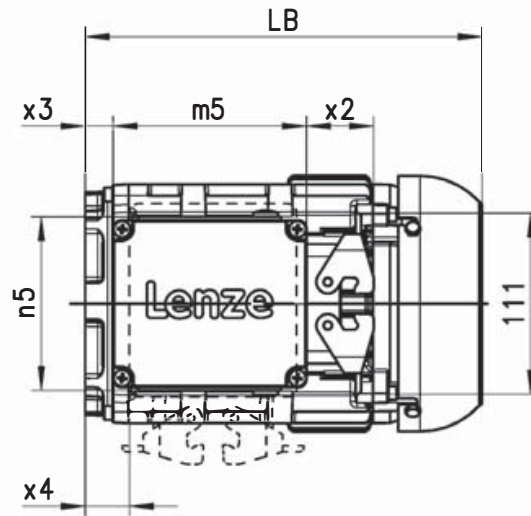
Positions of the connectors

Positions of the Han connector





Dimensions of HAN connector



8801790-00

Motor		m650-U						
		63/L4	71/M4 71/L4	80/M4	90/M4 90/L4	100/M4 100/L4	112/M4	132/S4 132/M4 132/L4
HAN connector								
Power/brake								
g_4	mm	123	134	147	155	165	170	237
x_2	mm	41	41	41	41	41	41	47
x_3	mm	6	1	19	25	34.5	40	39
m_5	mm	118	118	118	118	118	118	120
x_4	mm	7	2	20	26	35.5	41	9
n_5	mm	106	106	106	106	106	106	180

Dimensions LB ▶ [Basic dimensions](#) 107

Dimensions ΔL ▶ [Additional lengths](#) 143

Product extensions

Motor connection
Connection via terminal box



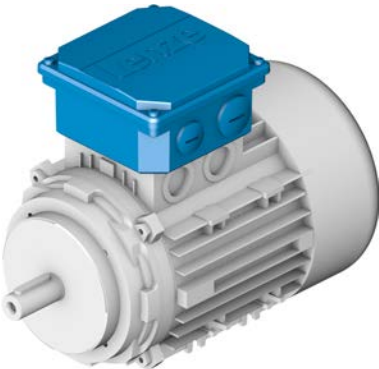
8.3.4 Connection via terminal box

Cable glands



The opening cutouts for the cable glands are closed with plugs.
As the cable glands are only arranged on one side of the motor terminal box "S", the position of the cable glands must be specified.
The motor terminal box "M" and "L" have openings on both sides.

Position of the connections



Position	Meaning	Note
1	Power connection Brake connection PE connection Feedback connection Temperature monitoring connection	For the terminal box "S", the position of the cable connections "L", "R" or "E" must be specified.



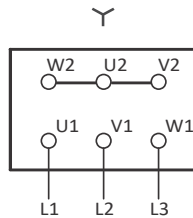
Product extensions

Motor connection
Connection via terminal box

Power connections

Bridge arrangement

Y circuit

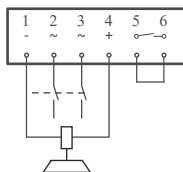


Terminal box, power		
Contact	Name	Meaning
PE	PE	PE conductor
U1	L1	Motor winding phase
V1	L2	
W1	L3	

DC brake connection

Contact	Name	Meaning
BD1	+	Brake +
BD2	-	Brake -

Connection of brake AC



Connection via rectifiers		
Contact	Name	Meaning
~	L1	Mains
~	N	
+	+	Holding brake (factory-wired)
-	-	
		Switching contact - DC switching

Temperature monitoring connection

Contact	Name	Meaning
TB1		TCO thermal contact
TB2		

Product extensions

Motor connection
Connection via connector



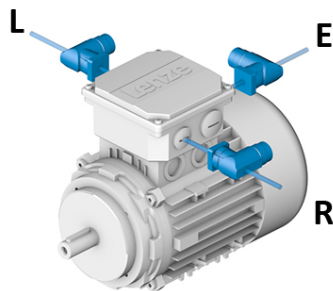
8.3.5 Connection via connector



Preassembled Lenze system cables are available for fast and error-free connection of Lenze motors to Lenze inverters.

Details and data can be found in the "Accessories" brochure on the Internet.

Position of the connections



Position	Meaning	Note
L, E and R	Additionally for the 8-pole M23 connector: • Temperature monitoring connection - TCO thermal contact • Brake supply connection	Caution: Max. brake supply voltage ≤ 230 V
L	M23 connector: • Feedback connection	The mounting position for the feedback connector is on the opposite side to the power connection (position L/R).



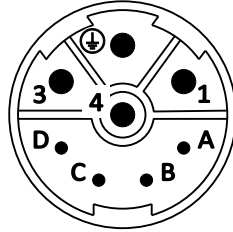
Product extensions

Motor connection
Connection via connector

Power and brake connection

M23 connector assignment

8-pole



M23 8-pole		
Contact	Name	Meaning
PE	PE	PE conductor
A	TB1	Temperature monitoring: TCO
B	TB2	Temperature monitoring: TCO
C	BD1 / BA1	Brake DC +/AC ≤ 230 V
D	BD2 / BA2	Brake DC-/AC ≤ 230 V
1	U	Power phase U
3	W	Power phase W
4	V	Power phase V

Product extensions

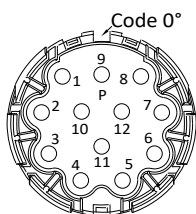
Motor connection
Connection via connector



Feedback and temperature monitoring connection

ICN-M23 connector assignment

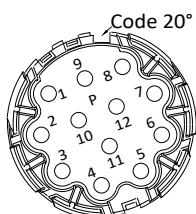
Resolver



M23 for resolvers		
Contact	Name	Meaning
1	+Ref	Transformer windings
2	-Ref	Transformer windings
3	+VCC ETS	Supply: Electronic nameplate (Only for motors and inverters that support this function)
4	+COS	Cosine stator windings
5	-COS	Cosine stator windings
6	+SIN	Sine stator windings
7	-SIN	Sine stator windings
8		Not assigned
9		Not assigned
10		Not assigned
11	+	Not assigned
12	-	Not assigned

ICN-M23 connector assignment

Incremental and SinCos absolute value encoder Hiperface®

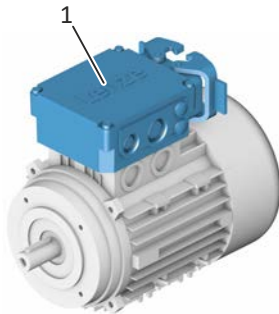


ICN M23 for encoders		
Contact	Name	Meaning
1	B	Track B / +SIN
2	A ⁻	Track A inverse / -COS
3	A	Track A / + COS
4	+UB	Supply +
5	GND	Mass
6	Z ⁻	Zero track inverse / -RS485
7	Z	Zero track / + RS485
8		Not assigned
9	B ⁻	Track B inverse/-SIN
10		Not assigned
11	+	Not assigned
12	-	Not assigned



8.3.6 Connection via Han connector

Position of the connections



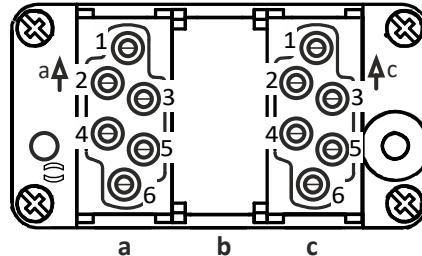
Position	Meaning
1	Power connection Brake connection PE connection Temperature monitoring connection
	Additionally for the Han-Modular: • Rectifier connection

Han-Modular connector



The motor circuit is defined in the terminal box.

Han-Modular 16 A connector assignment



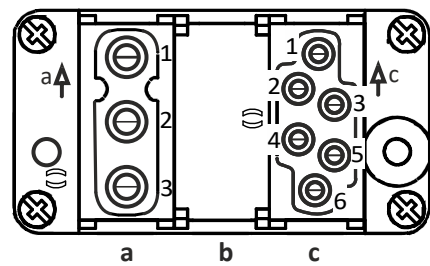
Han-modular 16 A			
Module	Contact	Name	Meaning
a	1	U1	Motor winding phase
	2	V1	
	3	W1	
b			Blank module
c	1	TKO	Temperature monitoring
	2	+/-AC	Brake
	3	-/-AC	
	4	Schaltkontakt	Rectifier
	6	TKO	Temperature monitoring

Product extensions

Motor connection
Connection via Han connector



Han-Modular 40 A connector assignment



Han-modular 40 A			
Module	Contact	Name	Meaning
a	1	U1	Motor winding phase
	2	V1	
	3	W1	
b			Blank module
c	1	TKO	Temperature monitoring
	2	+/-AC	Brake
	3	-/-AC	
	4	Schaltkontakt	Rectifier
	5		
	6	TKO	Temperature monitoring



8.4 Spring-applied brakes

The motors can be ordered with a spring-applied brake to allow stopping or deceleration of the moving masses. The spring-applied brake operates according to the closed-circuit principle. In the deenergized state, the brake is closed. The spring-applied brakes can be used as holding brakes.

Overview

The following table shows the possible versions of the spring-applied brakes.

Versions		Holding brake
		Single brake IP54/55
Standard		•
Supply voltages		
	DC supply	
	DC 24 V $\pm 10\%$	•
	DC 180 V ... 205 V $>10\%$	•
	AC supply via rectifier in the terminal box	
	AC 230 V $\pm 10\%$	•
	AC 400 V ... 460 V $>10\%$	•
Friction lining		
	Standard	•
Options		
	Manual release	•
	UL/CSA-approved	•
	Low noise during operation (noise-reduced rotor)	•
	Cover ring	•

Control	Without rectifier	Bridge/half-wave rectifier
		6-pole
Supply voltages	24 V DC DC 180 ... 205 V	AC 230 V AC 400 ... 460 V



8.4.1 Information on project planning

Important notes

DANGER!

Malfunction of the brake

Even small amounts of oil or grease on the friction surfaces reduce the braking torque considerably.

Possible consequences: Death or severe injuries

► Always keep the friction surfaces free of oil and grease.

Emergency stops

A maximum of 100 emergency stops are possible from $n = 2700$ rpm.



Connection

NOTICE

If used as a service brake, the braking torques are dependent on the motor speed to be braked.

- During braking from a high speed and in the event of emergency stops, the braking torque is significantly reduced.

Connection of the spring-applied brake

The spring-applied brakes can be ordered for connection to AC or DC voltage.

Connection to AC voltage

- A rectifier is required to convert the AC voltage into a DC voltage.
- The rectifier is included in the scope of supply. It is mounted in the terminal box of the motor.
- Available rectifiers:
 - Bridge rectifier, 6-pole

Connection to DC voltage

- No rectifier is required.
- A freewheeling diode or a spark suppressor must be used to prevent high induction peaks.

Motor supply cables

If long motor supply cables are used, pay attention to the ohmic voltage drop along the cable and compensate for it with a higher voltage at the input end of the cable.

The following applies to Lenze system cables:

$U[V] = U_B[V] + 0.08 \frac{[V]}{[A] \times [m]} \times I_{Lg}[m] \times I_B[A]$	U	V	Resulting supply voltage
	U _B	V	Rated voltage of the brake
	I _{Lg}	m	Cable length
	I _B	A	Rated current of the brake

Switching on the AC or DC side

Brakes can be switched both upstream of the rectifier (AC-side switching) and downstream of the rectifier (DC-side switching). The choice of control influences, among other things, the engagement time of the armature plate.

With switching on the AC side, the connection time increases by a factor of 5 to 10 compared to switching on the DC side. This must be taken into account when selecting the control. By simply removing a bridge and using the connections of the switching contact, DC-side switching is possible. However, this requires two additional wires in the control cabinet.

Product extensions

Spring-applied brakes
Spring-applied holding brake
Assignment of braking torques



8.4.2 Spring-applied holding brake

The spring-applied brakes are pure holding brakes. Emergency stops are possible.

DANGER!

An emergency stop during operation can cause the holding brake to malfunction.

Possible consequences: Personal injury and/or damage to property.

- After an emergency stop, check the air gap and the friction lining for damage.
- If the air gap is too large or the friction lining is damaged, replace the brake rotor.

8.4.2.1 Assignment of braking torques

For optimum adaptation of the brake motor to the application, spring-applied brakes with several braking torques are available for each motor frame size.

Motor	Single brake				
	HBR 06	HBR 08	HBR 10	HBR 12	HBR 14
	Nm	Nm	Nm	Nm	Nm
m650-U63/L4	4				
m650-U71/M4					
m650-U71/L4					
m650-U80/M4		8			
m650-U90/M4					
m650-U90/L4			16	32	
m650-U100/M4			23		
m650-U100/L4					
m650-U112/M4					
m650-U132/S4					
m650-U132/M4					
m650-U132/L4					

8.4.2.2 Rated data

Holding brake		HBR 06	HBR 08	HBR 10	HBR 10	HBR 12	HBR 14
Braking torque is static	Nm	4	8	16	23	32	60
Moment of inertia	kgcm ²	0.128	0.401	2	2	4.5	6.3
Power input							
DC 24 V	W	20	25	30	30	40	50
DC 180 V ... 205 V	W	20	25	30	30	40	53
AC 230 V	W	20	25	30	30	40	53
AC 400 V ... 460 V	W	20	25	30	30	40	53
Min. static braking torque tolerance	%	0	0	0	0	0	0
Max. static braking torque tolerance	%	80	80	80	80	80	80
Reversing cycles		1000000	1000000	1000000	1000000	1000000	1000000
Repetitive cycles		1000000	1000000	1000000	1000000	1000000	1000000
Maximum switching energy	J	3000	7500	12000	12000	24000	30000



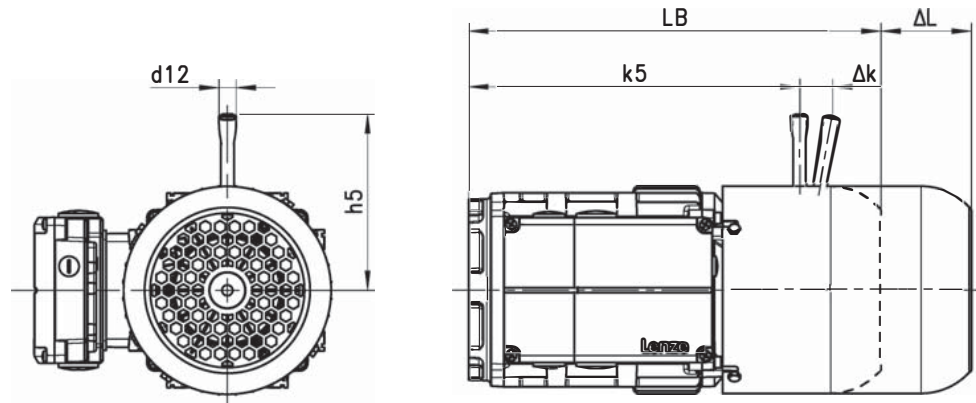
Product extensions

Spring-applied brakes
Spring-applied holding brake

Option: Manual release

The brake can be ordered with a manual release lever to facilitate positioning and maintenance work. The brake can be released manually in deenergized mode by actuating the manual release lever.

Dimensions of manual release lever



8801827-01

Motor	Brake	Dimensions			
		k_5	Δk	h_5	d_{12}
		mm	mm	mm	mm
m650-U63/L4	HBR 06	193	25	107	13
m650-U71/M4 m650-U71/L4	HBR 06	211	25	107	13
m650-U80/M4	HBR 08	231	27	116	13
m650-U90/M4	HBR 08	270	27	116	13
m650-U90/L4	HBR 10	286	23	131	13
m650-U100/M4 m650-U100/L4	HBR 10	344	23	131	13
m650-U112/M4	HBR 12	345	37	161	13
m650-U132/S4 m650-U132/M4 m650-U132/L4	HBR 14	408	53	229	20

Dimensions LB ▶ [Basic dimensions](#) 107

Dimensions ΔL ▶ [Additional lengths](#) 143



8.5 Feedback

The motor can be equipped with the following feedback systems for speed control via an inverter:

A resolver, incremental encoder and SinCos absolute value encoder are optionally available to evaluate the speed and position of the motor shaft.

The resolver can be used to measure an absolute value within one revolution of the rotor. A SinCos absolute value encoder is used if not only the angle within one revolution is to be made available immediately but also the revolution within a set range. The SinCos absolute value encoder detects not only the speed and rotor position but also the position of the machine. It consists of a speed sensor system, for example TTL, and an absolute value information recorder, for example Hyperface.

The HTL incremental encoder is used in the frequency inverter range for less dynamic applications.

It is used for dynamic applications with very high requirements regarding accuracy. If the absolute angular position of the drive is required directly after the system is switched on without performing additional homing, this can be realized via a resolver or SinCos absolute value encoder.



Resolver, absolute encoder and the IG128-24V-H add-on incremental encoder are mounted behind the B-bearing shield under the fan cover.

All other incremental encoders are integrated in the B-bearing shield, which usually makes the drive shorter.

Feedbacks in the environment of functional safety

Motors can perform speed-dependent safety functions for safe speed and/or safe relative position monitoring in a drive system by Lenze inverters or Controllers. In case of inverters, these functions are implemented by integrable safety modules and in case of Controllers by the additionally required Safety Controller.

When planning systems/installations of this kind, always observe the following:

- When using just one single feedback system in the environment of these safety applications, the applicable safety engineering standard EN 61800-5-2 (adjustable speed electrical power drive systems - Part: 5-2: Safety requirements - Functional) stipulates special requirements for the connection between feedback system and motor shaft.
- This is due to the fact that two-channel safety systems at this point in the mechanical system are actually designed as single-channel systems. If this mechanical connection is designed with considerable overdimensioning, the standard permits exclusion of the fault "encoder-shaft breakage" or "encoder-shaft slip". As such, the permissible angular acceleration limit values must not be exceeded for the individual drive solutions.

You can find the limit values in the corresponding feedback data of the individual motor ranges.

Speed-dependent safety functions

Examples of speed-dependent safety functions:

- Safe stop 1 (SS1)
- Safe operational stop (SOS)
- Safely limited speed (SLS)
- Safe maximum speed (SMS)
- Safe direction (SDI)
- Operation mode selector (OMS) with confirmation (ES)
- Safe speed monitor (SSM)
- Safely limited increment (SLI)



8.5.1 Resolver

The stator-supplied, 2-pole resolver with two stator windings shifted by 90 degrees and a rotor winding with a transformer winding can record both the speed and the rotor position, just like a single-turn absolute value encoder. The rotor position can be determined within one mechanical motor revolution after a voltage failure.

Feedback type			Resolver
Feedback			RS1
Speed-dependent safety functions			Nein
Design			Mounting
Resolution - angle		'	0.8
Min. accuracy		'	-10
Max. accuracy		'	10
Absolute positioning			1 revolution
Max. speed	$n_{\max}$	rpm	8000
Max. DC input voltage	$V_{\text{in,max}}$	V	10
Max. input frequency	$f_{\text{in,max}}$	kHz	4
Ratio stator/rotor			0.3
Min ratio tolerance		%	-5
Max ratio tolerance		%	5
Rotor impedance	Z_{ro}	Ω	51+j90
Stator impedance	Z_{so}	Ω	102+j150
Impedance	Z_{rs}	Ω	44+j76
Min. insulation resistance at DC 500 V	R_{min}	M Ω	10
Number of pole pairs			1
Max. angle error Min		'	-10
Max. angle error Max		'	10



8.5.2 Incremental encoder

Incremental encoders can be used for speed measurement. Homing is required in order to enable positioning later.

Incremental HTL encoder



Feedback in conjunction with the Han plug connector or the integrated i550/i650 motec is only available with the IG128-24V-H add-on incremental encoder (with 0.5 m cable and M12 plug connector).

Feedback type			Encoder			
Feedback			IG128-24V-H		IG1024-24V-H	IG2048-24V-H
Design			Mounting	integrated	integrated	integrated
Pulses			128	128	1024	2048
Output signals			HTL	HTL	HTL	HTL
Interfaces			A, B	A, B	A, B; N; Ai, Bi; Ni	A, B; N; Ai, Bi; Ni
Absolute revolution			0	0	0	0
Min. accuracy		'	-22.5	-2	-2	-2
Max. accuracy		'	22.5	2	2	2
Min. DC input voltage	$V_{in,min}$	V	8	10	10	10
Max. DC input voltage	$V_{in,max}$	V	26	30	30	30
Max. current consumption	I_{max}	A	0.04	0.15	0.15	0.15
Cut-off frequency	f_{max}	kHz	30	200	200	200

SinCos-incremental encoder with safety functions



The connection of the safety sensors to the terminal box is only available in conjunction with a M23 connector.

Feedback type			Encoder	
Feedback			IG2048-5V-V2	IG2048-5V-V3
Design			Mounting	
Pulses			2048	2048
Output signals			SinCos 1 Vss	SinCos 1 Vss
Interfaces			SinCos	SinCos
Absolute revolution			0	0
Min. accuracy			-	-
Max. accuracy			-	-
Min. DC input voltage	$V_{in,min}$	V	4.75	4.75
Max. DC input voltage	$V_{in,max}$	V	5.25	5.25
Max. current consumption	I_{max}	A	0.07	0.07
Cut-off frequency	f_{max}	kHz	400	400
Max. Safety Integrity Level			SIL 2	SIL 3
Max. Safety Performance Level			d	e



8.5.3 Absolute value encoder

Absolute value encoders can detect the speed, the rotor position, and the machine position with a very high resolution. They are used for the positioning of dynamic applications and do not require homing.

SinCos absolute value encoder

Feedback type			SinCos absolute value encoder
Feedback			AM1024-8V-H
Speed-dependent safety functions			Nein
Design			Mounting
Encoder type			Multi-turn
Resolution		bit	-
Pulses			1024
Output signals			SinCos 1 Vss
Interfaces			Hiperface
Absolute revolution			4096
Resolution - angle			0.4
Min. accuracy		'	-0.8
Max. accuracy		'	0.8
Fehlergrenze Positionswert			
System accuracy			-
Integral nonlinearity			-
Min. DC input voltage	$V_{in,min}$	V	7
Max. DC input voltage	$V_{in,max}$	V	12
Max. current consumption	I_{max}	A	0.08
Cut-off frequency	f_{max}	kHz	200



8.6 Temperature monitoring



The temperature sensors are integrated in the windings. The use of an additional motor protection switch is recommended.

8.6.1 Thermal contacts TC0

The TCO thermal contact (thermal break contact) is a bimetallic switch. The thermal contact monitors the motor winding temperature; e.g., at excessively high temperatures, it switches the upstream motor relay. The motor is disconnected from the line voltage and coasts down via the relay.

Functional principle			Normally-closed contact
Operating temperature		°C	150
Min. switching temperature		°C	145
Max. switching temperature		°C	155
Min. reset temperature		°C	90
Max. reset temperature		°C	135
Max. AC switching current		A	2.5
Max. AC switching voltage		V	250
Max. DC switching current		A	2.5
Max. DC switching voltage		V	12

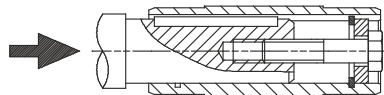


9 Accessories

9.1 Hollow shaft mounting kit

A mounting kit is available for easy installation of the hollow shaft.

Scope of supply



- Hexagon head screw
- Circlip
- Washer

Mounting set		Solid shaft	Hollow shaft diameter g500-													
Name	Material number	Thread	S130	S220		S400		S660		S950	S2100		S3100		S4500	
			25	25	30	30	35	40	45	40	50	55	60	70	70	80
Mounting kit B18	415783	M6														
Mounting kit B20	407309	M6														
Mounting kit B25	395903	M10	•	•												
Mounting kit B30	395904	M10			•	•										
Mounting kit B35	395905	M12					•									
Mounting kit B40	395906	M16						•		•						
Mounting kit B45	395907	M16							•							
Mounting kit B50	395908	M16									•					
Mounting kit B55	395909	M20										•				
Mounting kit B60	395910	M20											•			
Mounting kit B70	395911	M20												•	•	
Mounting kit B80	395912	M20														•



10 Product codes

Gearbox product code

Example		G	50	B	S	113	M	H	D	R	2	C	1B
Product type	Gearbox	G											
Product family			50										
Version				B									
Gearbox type	Shaft-mounted helical gearbox				S								
Output torque	130 Nm					113							
	220 Nm					122							
	400 Nm					140							
	660 Nm					166							
	950 Nm					195							
	2100 Nm					221							
	3100 Nm					231							
	4500 Nm					245							
	8000 Nm					280							
	14000 Nm					314							
	19000 Nm					319							
Type of construction	Geared motor						M						
	Gearbox						N						
Shaft design	Solid shaft with featherkey							V					
	Hollow shaft with keyway							H					
	Hollow shaft with shrink disc							S					
Housing type	Foot mounting + centering								A				
	Foot mounting								B				
	With centering								C				
	Threaded pitch circle								D				
Flange mounting	Without flange									R			
	Flange with through holes									K			
Number of stages	2-stage										2		
	3-stage										3		
	4-stage										4		
Motor mounting	Integrated motor											C	
	IEC adapter with jaw coupling											N U	
	IEC adapter with plug-in hollow shaft											H	
	NEMA adapter with jaw coupling											A	
	NEMA adapter with plug-in hollow shaft											B	
	Servo motor adapter with plug-in hollow shaft											S	
	Servo motor adapter with jaw coupling											E D G	
Drive size													1A ... □H 08 ... 82



Motor product code

Example		M	65	A	U	063	M	04	5	E	0	0	C	C
Product type	Motor	M												
Product family			65											
Generation				A										
Efficiency class	IE5				U									
Size						063 071 080 090 100 112 132								
Overall length	Short						S							
	Medium						M							
	Long						L							
Number of poles	4-pole							04						
Degree of protection	IP54/IP55								5					
Cooling	Integral fan									E				
Brake	Without										0			
	Spring-applied brake										F			
Feedback	Without											0		
	Absolute value encoder											A		
	Incremental encoder											E		
	Resolver											R		
Approvals	None												N	
	CE												C	
	CE, CCC												3	
	CE, cULus												L	
	CE, cULus, CCC												5	
	CE, cURus												U	
	CE, cURus, CCC												W	
Design type	Internal key													C



11 Motor data

11.1 Rated data

Motor			m650-U				
			63/L4	71/M4	71/L4	80/M4	90/M4
Rated power	P_{rated}	kW	0.75	1.1	1.5	2.2	3
Rated speed	n_{rated}	rpm	3720	3720	3720	3720	3720
Max. speed	n_{max}	rpm	4500	4500	4500	4500	4500
Rated voltage	V_{rated}	V	292	310	316	305	310
Rated current	I_{rated}	A	1.81	2.55	3.25	4.89	6.50
Standstill current	I_0	A	2.10	3.00	4.10	5.20	7.60
Max. current	I_{max}	A	5.00	6.70	8.85	12.5	17.7
Rated torque	M_{rated}	Nm	1.90	2.80	3.90	5.60	7.70
Standstill torque	M_0	Nm	2.10	3.40	4.80	6.00	9.15
Max. torque	M_{max}	Nm	4.75	7.1	9.6	13.2	19.4
Power factor	$\cos \phi$		0.93	0.95	0.95	0.96	0.96
Efficiency							
at 50% P_{rated}	η		0.908	0.897	0.897	0.884	0.885
at 75% P_{rated}	η		0.889	0.883	0.906	0.903	0.903
at 100% P_{rated}	η		0.846	0.862	0.874	0.889	0.899
Moment of inertia	J	kgcm ²	3.24	8.75	11.1	21.1	35.8
Weight	m	kg	5.1	7.3	8.5	10.6	13.9
Power losses							
25; 25	$P_V(n; M)$	%	1.2	1.4	0.9	1.1	1.8
25; 100	$P_V(n; M)$	%	10.3	7.6	6.0	6.6	5.5
50; 25	$P_V(n; M)$	%	1.6	2.0	1.6	2.6	2.5
50; 50	$P_V(n; M)$	%	3.5	3.4	2.8	3.7	3.4
50; 100	$P_V(n; M)$	%	10.9	8.6	7.0	7.9	6.9
90; 50	$P_V(n; M)$	%	5.1	5.7	5.7	6.6	6.5
90; 100	$P_V(n; M)$	%	12.7	11.3	9.5	11.0	10.2
100; 100	$P_V(n; M)$	%	13.5	14.6	11.3	11.8	11.5
Power losses							
25; 25	$P_V(n; M)$	W	9	15	14	25	54
25; 100	$P_V(n; M)$	W	77	84	90	57	164
50; 25	$P_V(n; M)$	W	12	22	24	57	75
50; 50	$P_V(n; M)$	W	26	37	42	81	103
50; 100	$P_V(n; M)$	W	82	95	105	174	207
90; 50	$P_V(n; M)$	W	38	63	86	145	194
90; 100	$P_V(n; M)$	W	95	124	142	241	307
100; 100	$P_V(n; M)$	W	101	161	169	259	345



Motor data

Rated data

Motor			m650-U				
			90/L4	100/M4	100/L4	112/M4	132/S4
Rated power	P_{rated}	kW	4	5.5	7.5	11	15
Rated speed	n_{rated}	rpm	3720	3720	3720	3720	3720
Max. speed	n_{max}	rpm	4500	4500	4500	4500	4500
Rated voltage	V_{rated}	V	325	314	325	310	316
Rated current	I_{rated}	A	8.15	11.5	14.8	23.1	29.6
Standstill current	I_0	A	8.80	13.3	16.7	22.4	31.7
Max. current	I_{max}	A	22.3	32.7	43.5	62.4	80.3
Rated torque	M_{rated}	Nm	10.3	14.1	19.3	28.2	38.5
Standstill torque	M_0	Nm	11.2	16.4	21.3	27.4	41.5
Max. torque	M_{max}	Nm	25.75	36.1	49.7	71	99.4
Power factor	$\cos \phi$		0.96	0.95	0.96	0.96	0.99
Efficiency							
at 50% P_{rated}	η		0.900	0.926	0.943	0.949	0.924
at 75% P_{rated}	η		0.910	0.930	0.947	0.920	0.952
at 100% P_{rated}	η		0.907	0.916	0.924	0.932	0.937
Moment of inertia	J	kgcm ²	45.9	75.9	97.5	151.8	320.4
Weight	m	kg	16	21.7	25.6	31.8	50.7
Power losses							
25; 25	$P_V (n; M)$	%	1.0	0.6	0.5	0.8	0.7
25; 100	$P_V (n; M)$	%	4.8	3.7	3.4	3.7	3.0
50; 25	$P_V (n; M)$	%	2.1	1.1	1.0	1.7	1.5
50; 50	$P_V (n; M)$	%	2.9	1.9	1.6	2.3	2.0
50; 100	$P_V (n; M)$	%	6.0	4.5	4.0	4.7	3.9
90; 50	$P_V (n; M)$	%	5.6	4.0	3.0	4.4	4.1
90; 100	$P_V (n; M)$	%	8.8	6.7	5.5	6.9	6.2
100; 100	$P_V (n; M)$	%	10.1	7.8	6.2	7.6	6.2
Power losses							
25; 25	$P_V (n; M)$	W	40	31	38	86	101
25; 100	$P_V (n; M)$	W	190	204	255	411	221
50; 25	$P_V (n; M)$	W	82	63	74	183	221
50; 50	$P_V (n; M)$	W	117	103	120	251	300
50; 100	$P_V (n; M)$	W	239	246	298	515	591
90; 50	$P_V (n; M)$	W	222	221	227	479	617
90; 100	$P_V (n; M)$	W	353	370	415	761	930
100; 100	$P_V (n; M)$	W	402	428	463	836	1010



Motor			m650-U	
			132/M4	132/L4
Rated power	P_{rated}	kW	18.5	22
Rated speed	n_{rated}	rpm	3720	3720
Max. speed	n_{max}	rpm	4500	4500
Rated voltage	V_{rated}	V	336	330
Rated current	I_{rated}	A	34.5	41.4
Standstill current	I_0	A	39.6	39.6
Max. current	I_{max}	A	109	109
Rated torque	M_{rated}	Nm	47.5	56.5
Standstill torque	M_0	Nm	54.9	54.9
Max. torque	M_{max}	Nm	141.9	141.9
Power factor	$\cos \phi$		0.99	0.99
Efficiency				
at 50% P_{rated}	η		0.945	0.957
at 75% P_{rated}	η		0.942	0.957
at 100% P_{rated}	η		0.942	0.944
Moment of inertia	J	kgcm ²	416.2	416.2
Weight	m	kg	60.8	60.8
Power losses				
25; 25	$P_V(n; M)$	%	0.4	0.4
25; 100	$P_V(n; M)$	%	2.4	3.0
50; 25	$P_V(n; M)$	%	0.8	0.7
50; 50	$P_V(n; M)$	%	1.3	1.3
50; 100	$P_V(n; M)$	%	2.9	3.4
90; 50	$P_V(n; M)$	%	2.7	2.5
90; 100	$P_V(n; M)$	%	4.5	4.7
100; 100	$P_V(n; M)$	%	6.1	4.2
Power losses				
25; 25	$P_V(n; M)$	W	81	72
25; 100	$P_V(n; M)$	W	651	453
50; 25	$P_V(n; M)$	W	163	156
50; 50	$P_V(n; M)$	W	283	243
50; 100	$P_V(n; M)$	W	751	545
90; 50	$P_V(n; M)$	W	540	500
90; 100	$P_V(n; M)$	W	1031	827
100; 100	$P_V(n; M)$	W	1124	923



12 Environmental notes and recycling

Lenze products are intended for use by companies in industrial environments. This means that they are also subject to requirements regarding recycling and disposal. Both mechanical and electrical components such as electric motors, gearboxes, and inverters contain valuable raw materials that can be recycled and reused. Proper recycling is important and sensible from both an economic and ecological perspective.

For information on the proper disposal and legal requirements of our products, please refer to the information on the respective product page on the Internet:

<https://www.lenze.com/en-de/products>

If you require support, please contact your local branch:

<https://www.lenze.com/en-de/company/global-presence>

Note: By disposing of devices and packaging properly, you are helping us to protect the environment and conserve resources.



Further information on Lenze's environmental and climate responsibility and on the topic of energy efficiency can be found on the Internet:

<https://www.lenze.com/en-de/company/sustainability>



13 Appendix

13.1 Good to know

13.1.1 Operating modes of the motor

Operating modes S1 ... S10 as specified by EN 60034-1 describe the basic stress of an electrical machine.

In continuous operation a motor reaches its permissible temperature limit if it outputs the rated power dimensioned for continuous operation. However, if the motor is only subjected to load for a short time, the power output by the motor may be greater without the motor reaching its permissible temperature limit. This behaviour is referred to as overload capacity.

Depending on the duration of the load and the resulting temperature rise, the required motor can be selected reduced by the overload capacity.

The most important operating modes

Continuous operation S1	Short-time operation S2
Operation with a constant load until the motor reaches the thermal steady state. The motor may be actuated continuously with its rated power.	Operation with constant load; however, the motor does not reach the thermal steady state. During the following standstill, the motor winding cools down to the ambient temperature again. The increase in power depends on the load duration.



Intermittent operation S3	Non-intermittent periodic operation S6
Sequence of identical duty cycles comprising operation with a constant load and subsequent standstill. Start-up and braking processes do not have an impact on the winding temperature. The steady-state is not reached. The guide values apply to a cycle duration of 10 minutes. The power increase depends on the cycle duration and on the load period/downtime ratio.	Sequence of identical duty cycles comprising operation with a constant load and subsequent no-load operation. The motor cools down during the no-load phase. Start-up and braking processes do not have an impact on the winding temperature. The steady-state is not reached. The guide values apply to a cycle duration of 10 minutes. The power increase depends on the cycle duration and on the load period/idle time ratio.
P Power t Time t_L Idle time θ Temperature	P_V Power loss t_B Load period t_S Cycle duration

13.1.2 Enclosures

The protection class indicates the suitability of a product for specific ambient conditions with regard to humidity as well as the protection against contact and the ingress of foreign particles. The protection classes are classified in the EN IEC 60034-5/EN IEC 60529.

The first code number after the code letters IP indicates the protection against the ingress of foreign particles and dust. The second code number refers to the protection against the ingress of humidity.

Code number 1	Degree of protection	Code number 2	Degree of protection
0	No protection	0	No protection
1	Protection against the ingress of foreign particles $d > 50$ mm. No protection in case of deliberate access.	1	Protection against vertically dripping water (dripping water).
2	Protection against medium-sized foreign particles, $d > 12$ mm, keeping away fingers or the like.	2	Protection against diagonally falling water (dripping water), 15° compared to normal service position.
3	Protection against small foreign particles $d > 2.5$ mm. Keeping away tools, wires or the like.	3	Protection against spraying water, up to 60° from vertical.
4	Protection against granular foreign particles, $d > 1$ mm, keeping away tools, wire or the like.	4	Protection against spraying water from all directions.
5	Protection against dust deposits (dust-protected), complete protection against contact.	5	Protection against water jets from all directions.
6	Protection against the ingress of dust (dust-proof), complete protection against contact.	6	Protection against choppy seas or heavy water jets (flood protection).

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